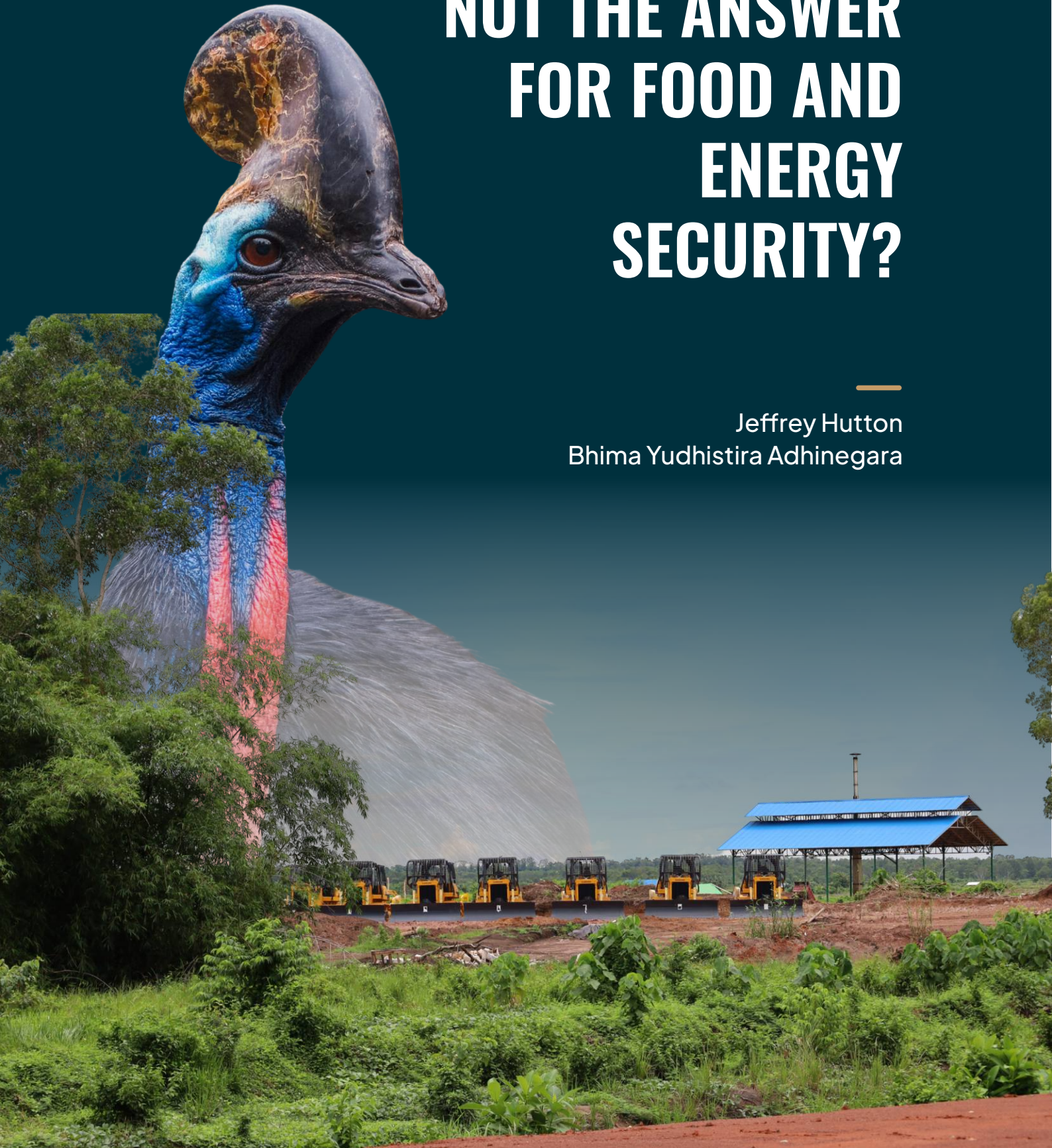


WHY ARE FOOD ESTATES NOT THE ANSWER FOR FOOD AND ENERGY SECURITY?

Jeffrey Hutton
Bhima Yudhistira Adhinegara



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EXECUTIVE SUMMARY

The administration of President Prabowo Subianto is seizing on the energy supply shock stemming from the US-Israeli war with Iran as evidence that the country will need to expand its domestic production of biofuel.

But such a strategy comes at enormous financial, environmental and political costs while doing little to secure the country's energy needs.

Even before energy shipments through the Straits of Hormuz came to a virtual standstill, Indonesia had planned to rapidly expand bioethanol production through large-scale sugarcane and rice plantations and production facilities that are centred on Merauke, South Papua.

As well as supporting domestic supplies of rice, the government's goal is to use the sugarcane as feedstock that can be converted into fuel-grade bioethanol. The biofuel will be mixed with the country's supply of gasoline as a means of reducing gasoline imports, reducing greenhouse gas emissions and promoting economic activity in remote areas.

The scheme, undertaken by corporate interests closely allied with the administration of President Prabowo Subianto as well as with the military, will clear more than 2 million hectares – nearly a fifth of the province.

Unlike previous failed attempts¹ to construct food estates in Papua as well as in Kalimantan, the Merauke project appears to have some private backing with some initial work underway.

The resource company Jhonlin Group, owned by Andi Syamsuddin Arsyad – better known as Haji Isam – has worked on roughly half of a planned 120 km access road through swampy terrain.

Corporate filings indicate that affiliates of plantation company First Resources, which hold the only concessions so far awarded to grow sugar cane in South Papua, have committed capital of more than Rp1 trillion (US\$58.8 million).

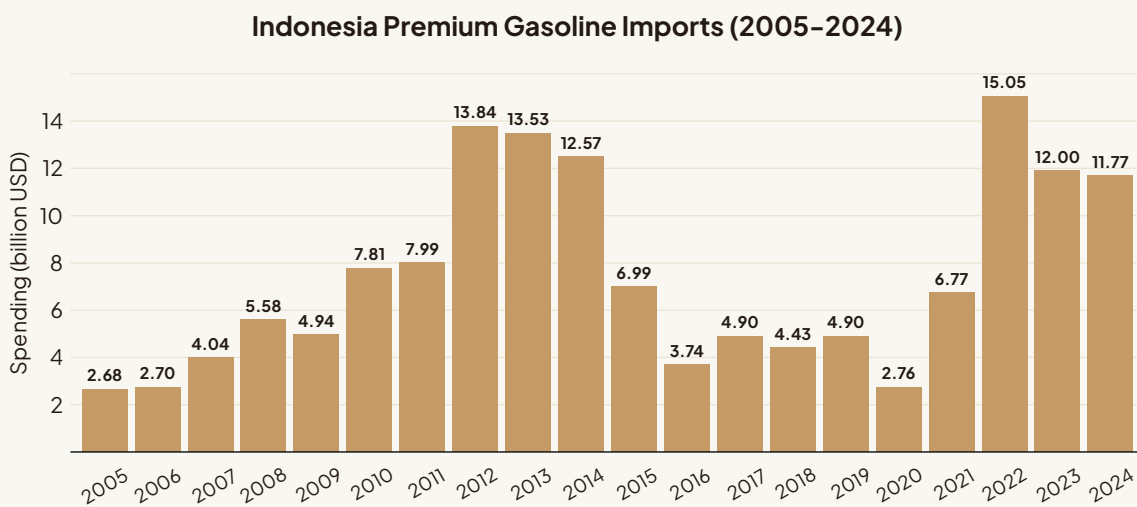
Satellite photos indicate the companies², including First Resources affiliate, PT Global Papua Abadi, have cleared nearly 25,000 hectares of their concessions – approaching 5 percent of the total awarded under PT GPA's concession.

¹ "Food Estate Plans Back with a Vengeance" <https://awasmifee.potager.org/>

² Copernicus Sentinel data. Satellite image taken 15 July 2025. Viewed via Soar.Earth at coordinates -7.484, 139.066. Retrieved September 30, 2025.

The central government frames its bioethanol initiative to reduce carbon emissions, improve the country's food self-sufficiency and energy resiliency. Indonesia wants to reduce how much it spends on imported fuel. State-owned enterprise Pertamina has said it has imported between US\$ 12 billion and US\$ 15 billion of gasoline every year since 2022.

Government data published in February indicates imports of premium gasoline were US\$10.8 billion³.



Source: Ministry of Energy and Mineral Resource 2025

But the strategy undermines governance and transparency by favouring allies of the president while diverting public resources from building public transport, investing in renewable energy and promoting electric vehicles which are better suited to addressing climate change and reducing reliance on foreign sources of energy.

³ Badan Pusat Statistik (BPS) Indonesia, "Berita Resmi Statistik No. 12/02/Th. XXIX: Perkembangan Ekspor dan Impor Indonesia Desember 2025," released February 2, 2026.

KEY FINDINGS

- 1 The estimated cost of Indonesia's bioethanol expansion program is more than **US\$ 11 billion over 10 years equal to 89% current energy subsidy**.
- 2 The Merauke Food Estate project alone requires nearly **US\$8 billion** to clear 2 million hectares for sugarcane as well as rice paddy, including mills, ethanol plants, and a 120 MW power plant.
- 3 To meet the national target of 1.2 billion litres of bioethanol by 2030, an additional US\$ 1.7 billion in capital expenditure will be required, based on comparable projects.
- 4 Bioethanol can reduce greenhouse gases emissions at the point of use but regulatory and financial support for renewables and the rapid adoption of electric vehicles may have more impact.
- 5 The initial involvement of Jhonlin Group and First Resources lacks transparency and may indicate preferential treatment for politically connected conglomerates.
- 6 Introducing bioethanol into the national fuel mix may make Indonesia's transportation sector more vulnerable to energy imports in the event that Indonesia is pressured to import bioethanol from the US as part of July's tariff agreement.
- 7 Large-scale sugarcane development threatens to displace local communities, increase pressure on forests and wetlands, and risk repeating the governance failures of the earlier MIFEE (Merauke Integrated Food and Energy Estate) program.

INTRODUCTION

Indonesia plans to integrate use of bioethanol into its national energy strategy as part of its broader goals to reduce energy imports, reduce dependence on fossil fuel imports, and lower greenhouse gas emissions.

Central to this strategy is the Merauke Food Estate project in South Papua, which aims to create vast sugarcane plantations that will produce feedstock to produce bioethanol.

Policy Background

The regulatory framework underpinning this initiative is set out in Presidential Regulation No. 40/2023⁴, which mandates accelerated development of sugar self-sufficiency and bioethanol production. Presidential Decree No. 15/2024⁵, which establishes a dedicated task force to drive investment in sugarcane and related downstream industries.

Objectives of the Bioethanol Program

The government highlights three primary objectives:

Energy Security	Economic Development	Environmental Benefits
Reducing dependence on imported gasoline through domestic ethanol blending.	Stimulating rural development and industrialization through sugarcane estates.	Lowering carbon emissions from the transport sector by shifting from fossil fuels to biofuels.

Scope of this Report

This report investigates the real costs and implications of the Merauke Food Estate project and broader bioethanol expansion, focusing on:

Financial viability

including capital expenditure, subsidies, and opportunity costs.

Governance and transparency

assessing the involvement of politically connected conglomerates such as Jhonlin Group and First Resources.

⁴ Percepatan Swasembada Gula Nasional Penyediaan Bioetanol Sebagai Bahan Bakar Nabati (Biofuel), <https://peraturan.bpk.go.id/Details/251973/perpres-no-40-tahun-2023>

⁵ Satuan Tugas Percepatan Gula dan Bioetanol di Kabupaten Merauke, Provinsi Papua Selatan, <https://peraturan.bpk.go.id/Details/283176/keppres-no-15-tahun-2024>

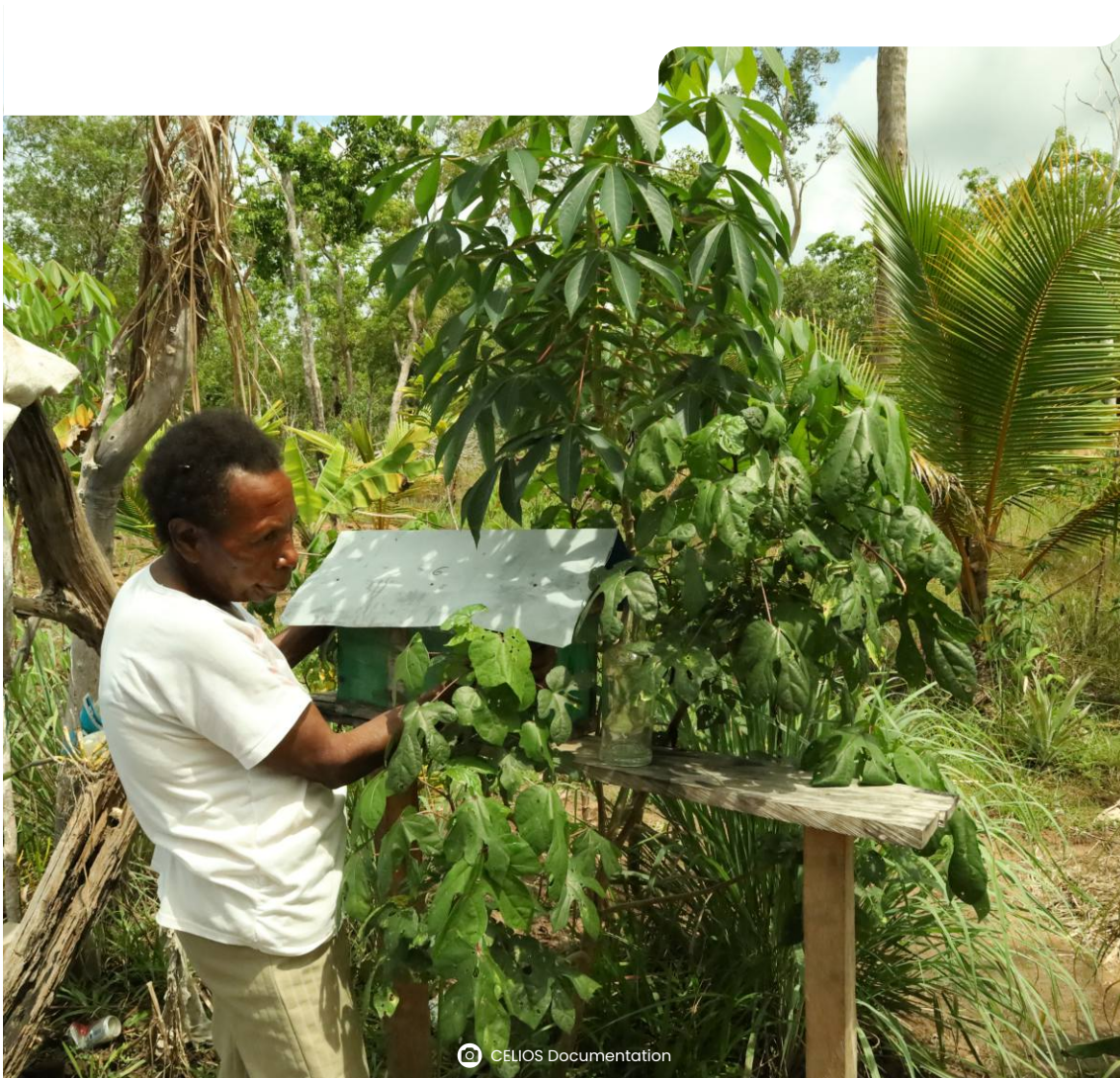
Alternative pathways

such as electric vehicles and renewable energy, which may offer more effective solutions to Indonesia's energy transition and carbon emission goals.

This report does not include an impact assessment on the environment nor on local indigenous communities, owing to the volume of research that is already available. Rather, our focus is on making plain the undisclosed costs and needed investment associated with constructing the food estate and developing a bioethanol supply chain from scratch. To date this initiative has progressed despite limited public oversight in the form of public tenders or formal budgeting through parliament.

Few will argue with the food estate's purported goal of ensuring Indonesia is insulated from international shocks to its food supply as well as reducing greenhouse gas emissions and blunting the impact of imported gasoline.

But the top-down construction of a bioethanol industry on a compressed schedule risks graft and wasteful spending. Alternative strategies, while less expansive, may deliver more cost effective results.



BACKGROUND

Food estates are not new for Indonesia. Dating back to the mid-1990s, during the era of President Soeharto, their main goal was to convert large tracts of land for agriculture to boost food production and to ensure Indonesia could feed its own people without relying on imports⁶.

Food estates have appealed to Indonesian leaders because they target self-sufficiency in both food and energy. Vast tracts of land are brought under large-scale plantation and agro-industrial management, with policymakers presenting these projects as a way to stabilize domestic supply while asserting sovereignty and national resilience⁷.

Presidents Susilo Bambang Yudhoyono, Joko Widodo promoted food estates. Prabowo's Merauke Food Estate expands on the Merauke Integrated Food and Energy Estate (MIFEE), which started in 2010 and was intended to cover more than 1 million hectares while attracting investment in industrial-scale agriculture.

Development focused on areas that were ultimately unsuited for cultivation owing to pest infestation, poor irrigation and drainage as well as soil type – often peatland. Peat is too acidic to cultivate sugar, rice or cassava⁸. Despite significant allocated budgets, less than 9 percent of the land that was cleared at MIFEE was cultivated during Yudhoyono's presidency, and only 2.4 percent during Widodo's⁹.

The deforestation necessary to ready vast spaces for cultivation dramatically increases Indonesia's greenhouse gas emissions. Clearing 2 million hectares under the Merauke Food Estate would generate 782.45 million tons of CO₂ emissions, equivalent to a carbon loss valued at IDR 47.73 trillion and effectively doubling Indonesia's contribution to greenhouse gas emissions¹⁰.

Domestic production of biofuels dates back to early in Yudhoyono's first term in response to falling domestic oil production. Initiatives then focused on palm oil-based biodiesel, which was formally incorporated into the national energy mix under the 2006 Biofuel Development Policy¹².

6 Rahmad Supriyanto, Asmara Maharani, and Aditya Alta, *Menafsir Ulang Food Estate Indonesia: Jejak, Dinamika, dan Masa Depan Ketahanan Pangan Nasional*, Policy Brief 28 (Jakarta: Center for Indonesian Policy Studies, 2024)

7 "Indonesia: The New Old Strategy of Food Estates," Reporting ASEAN, <https://www.reportingasean.net/indonesia-the-new-old-strategy-of-food-estates/>

8 Ibid.

9 Ibid No. 6.

10 CELIOS, *Vanishing Forests and Rising Emissions: How the Merauke Food Estate Speeds Up the Climate Crisis* (Report, CELIOS, December 2024), <https://celios.co.id/wp-content/uploads/2024/12/Vanishing-Forests-and-Rising-Emissions-How-the-Merauke-Food-Estate-Speeds-Up-the-Climate-Crisis-1.pdf>.

11 Anastasia Kharina, Chris Malins, and Stephanie Searle, *Biofuels Policy in Indonesia: Overview and Status Report*, The International Council on Clean Transportation, August 8, 2016, <https://theicct.org/publication/biofuels-policy-in-indonesia-overview-and-status-report/>.

12 National Energy Policy (Presidential Regulation No. 5/2006), stipulated in Jakarta, January 25, 2006. <https://faolex.fao.org/docs/pdf/ins64284.pdf>

Subsequent administrations expanded biodiesel blending mandates supported by a tax on crude palm oil exports. The tax – or levy – supports the B35 mandate introduced in 2023 under President Joko Widodo, erasing the price gap between biodiesel mixed with 35 per cent palm oil and that derived entirely from fossil fuel¹³. In 2024 biodiesel production reached 13.2 billion litres¹⁴.

Prabowo responds to the recent energy crisis from the Iran-US war by targeting B50 or 50% blending fuel with palm oil. This raises more concern about fiscal space, and environmental consequences.

Bioethanol, however, has lagged behind. Although small-scale ethanol plants operate in Java and Sumatra, production is limited due to cost competitiveness, feedstock constraints, and weaker industrial support compared to biodiesel.



¹³ Kurniawati Hasjanah, "Indonesia May Start Using Biodiesel B35 in February 2023, What Should the Government Pay Attention?," Institute for Essential Services Reform (IESR), February 7, 2023, <https://iesr.or.id/en/indonesia-may-start-using-biodiesel-b35-in-february-2023-what-should-the-government-pay-attention/>.

¹⁴ "Indonesia Cetak Rekor Pengembangan Biodiesel! - APROBI," Indonesian Biofuel Producer Association (APROBI), March 4, 2025, <https://www.aprobi.or.id/indonesia-cetak-rekor-pengembangan-biodiesel/>.

COST ANALYSIS

This chapter examines the projected costs of Indonesia's bioethanol expansion, focusing on the Merauke Food Estate as its most capital-intensive component.

The experience of biodiesel – and indeed in Brazil with its ethanol programme – indicates that success is possible given enough time and resources. Still, there can be no doubt that the financial burden of Indonesia's bioethanol expansion program is significant.

Current estimates place the total cost at **US\$ 11 billion over ten years**. This figure includes the Merauke Food Estate and the broader national production target of reaching 1.2 billion litres per year by 2030, as enumerated in the above presidential decree. It includes likely subsidies necessary to lower the cost of bioethanol at the point of use and lost export revenue from molasses that otherwise would have been shipped to overseas customers.

3.1. Merauke Food Estate Costs

The Merauke Food Estate represents the single largest component of Indonesia's bioethanol expansion. Key cost elements include:

- **US\$ 8 billion total investment**¹⁵ to expand area under sugarcane production more than five times to 2 million hectares of sugarcane by 2029. Total area under sugarcane cultivation was nearly 490,000 in 2023¹⁶.
- Infrastructure requirements, including:
 - Five sugar mills to process raw cane.
 - Bioethanol facilities with an annual capacity of 200 million litres.
 - 120 megawatt power plant to support operations (energy source unclear).

Satellite images of the region dated 2025 July between Wanam and Muting in South Papua appear to show land clearing for an access road.

¹⁵ Yoseph Krishna, Fitriana Monica Sari, and Erlinda Puspit, "Hitung-Hitung Investasi Di Food Estate Merauke," *Validnews.id*, December 28, 2024, <https://validnews.id/ekonomi/hitung-hitung-investasi-di-food-estate-merauke>.

¹⁶ Badan Pusat Statistik (BPS), *Statistik Tebu Indonesia 2023* (Jakarta: BPS, 2024), accessed September 30, 2025, <https://tinyurl.com/bpssugarcane>.



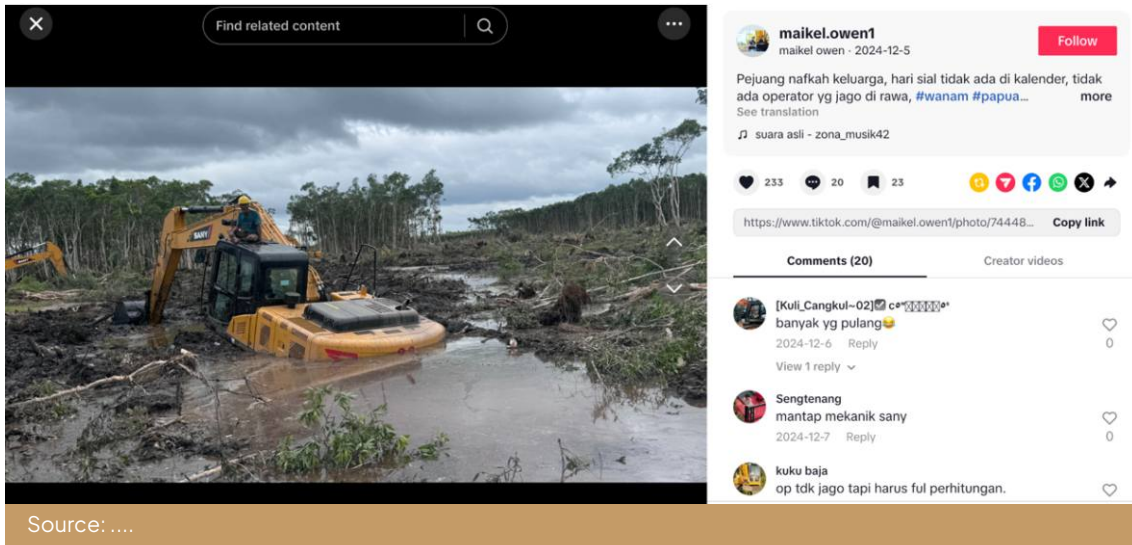
Source: Soar Earth Satellite, <https://tinyurl.com/meraukesatellite>. 13 June, 2025.

Satellite images taken in late December appear to show extensive clearing both around the access road and sugarcane plantations to the southeast.



Source: Copernicus Browser, <https://tinyurl.com/3udh7yiv>. 29 December, 2025.

Social media posts from workers depict use of heavy machinery purportedly in the area, some getting bogged down in the swampy terrain.



Requests for offers from the public works ministry bears out some of the costs associated with the project.

One such offer for development work on the same stretch of road that appears in the satellite photo above is valued at Rp 5 trillion (US\$ 330 million). It includes construction of the road and bridges over a span of 80 km¹⁷ for Segment II at an inferred cost of IDR 62.5 billion per kilometer.

The budget appears broadly in line with similar recent projects in the region. In April 2024 PT Hutama Karya (Persero) won an IDR 3.3 trillion rupiah contract to construct a 50.14 km segment of the Jayapura–Wamena segment of the Trans–Papua road project at an inferred rate of IDR 65.8 billion rupiah per kilometer. The work scope included the handling construction of roads, bridges, while mitigating slopes and cliffs.

At the time writing PT Hutama Karya was the top bidder for the project at IDR 4.81 trillion¹⁸.

A straightforward rupiah– per– kilometer cost calculation suggests that the value of Jhonlin Group’s work to build the initial 40 km of the road – work that does not appear to have been put up for tender – may have spent upwards of Rp 2.5 trillion.

Construction work at the Merauke Food Estate will also include land preparation and site preparation.

The area’s remote location will push up logistics costs. South Papua is flat and swampy and lacks the needed construction material to build the road. Interviews with workers with the Jhonlin Group report basic material including gravel must be imported from far off sources.

¹⁷ Kementerian Pekerjaan Umum dan Perumahan, *Request for offer No.10070593000 Pembangunan Jalan KSPW Wanam – Muting Segmen II*, 11 Agustus 2025, diakses melalui <https://spse.inaproc.id/pu/>.

¹⁸ LPSE Kementerian Pekerjaan Umum dan Perumahan Rakyat, "Pembangunan Jalan KSPW Wanam–Muting Segmen II", Hasil Evaluasi Tender Proyek 1007059300. Accessed September 30, 2025, <https://spse.inaproc.id/pu/evaluasi/10070593000/hasil>.

Jhonlin Group affiliate, PT Batulicin Beton Asphalt, is transporting road building material by barge to the port in Wanam South Papua from Nerong, Kei Besar, Maluku where local media says it operates a controversial mine that allegedly lacks an operating permit as well as an environmental impact study¹⁹. At a distance of more than 1,400 km, travel time is roughly one week although longer travel times are common in bad weather.

Online transponder tracking sites reveal steady seaborne traffic between the two destinations. (Image: 2025 movements for tugboat Johni LXI.)



Logistics costs will also push up the cost of food which is either shipped or flown to Wanam from Merauke, 250 km away by road. Workers commute by Susi Air or the government or TNI ferry.

The project's financial structure remains opaque, with a combination of private conglomerates, government tenders, and military support. Tax holidays and tariff waivers reportedly secured by PT Global Papua Abadi (GPA) further complicate cost transparency²⁰.

3.2. National CAPEX Requirement

Indonesia's current capacity to produce, transport and store bioethanol is limited. Name plate capacity at current production facilities total 60 million litres a year²¹:

- 1 PT Indonesia Ethanol Industry, Central Lampung, Lampung. Capacity: 20 million litres per year.

¹⁹ "Polemik PT. Batulicin Seret Nama Jasmono," Rakyat Maluku, July 10, 2025, <https://rakyatmaluku.fajar.co.id/2025/07/10/polemik-pt-batulicin-seret-nama-jasmono/>.

²⁰ Ibid No.12.

²¹ Firda Dwi Muliawati, "Tahun Depan Produksi Bioetanol RI Bisa Nambah 30.000 KL, Ini Sumbernya" [Next Year, Indonesia's Bioethanol Production Could Add 30,000 KL, Here is the Source], CNBC Indonesia, December 11, 2024, <https://www.cnbcindonesia.com/news/20241211141813-4-595082/tahun-depan-produksi-bioetanol-ri-bisa-nambah-30000-kl-ini-sumbernya>.

- 2 PT Madu Baru, Yogyakarta. Capacity: 3 million litres per year.
- 3 PT Molinda Raya Industrial, Malang, East Java. Capacity: 10 million litres per year.
- 4 PT Energi Agro Nusantara (Enero), Mojokerto, East Java. Capacity: 30 million per year.

Construction was due to start in 2025 on a new fuel-grade bioethanol facility – a joint venture between PT Pertamina New and Renewable Energy and PT Sinergi Gula Nusantara (SGN) at SGN’s existing Glenmore sugar mill in Banyuwangi, in East Java with a capacity of 30 million litres per year.

A plan to build a bioethanol factory in Merauke with production capacity of between 150 million and 300 million litres per year by 2027 faces delays owing to trouble with buying the land, according to media reports citing Eniya Listiani, director general of new, renewable energy and conservation at the ministry of energy and mineral resources.

Recent press statements by Pertamina suggest that production sites may be far flung including not only South Papua – the focus of the bioethanol initiative – and densely populated Java, but also more remote locations including East Nusa Tenggara²². This portends a diffuse and complicated supply chain.

There is scant publicly available investment data for bioethanol production facilities. Comparable projects informing this estimate include:

- PT Energi Agro Nusantara (Enero) reactivation** in Mojokerto: 30 million litres/year, cost US\$ 42.9 million²³.
- Pertamina Banyuwangi plant:** 30 million litres/year, projected cost US\$ 30–40 million²⁴.
- Production facilities at the Merauke Food Estate are planned but details are unavailable.

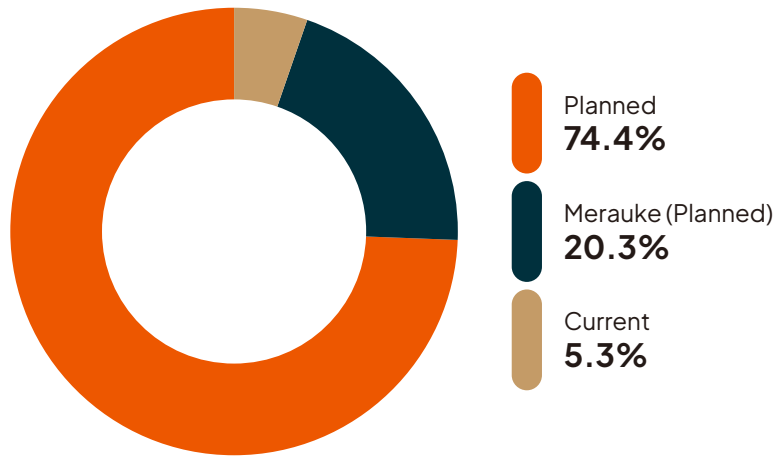
These data points indicate that each litre of bioethanol requires roughly US\$ 1.40 in capital expenditure, suggesting achieving production of 1.2 billion litres will require about US\$ 1.7 billion of investment.

²² "Pertamina NRE Ready to Build Bioethanol Plant, Optimize Domestic Resources," Pertamina NRE, 9 September 2024, <https://www.pertaminanre.com/publication/news/pertamina-nre-siap-bangun-pabrik-bioetanol-optimalikan-sumber-daya-domestik>.

²³ Indra Harsaputra, "Construction on first RI bioethanol plant started," *The Jakarta Post*, 21 Agustus 2013, <https://www.thejakartapost.com/news/2013/08/21/construction-first-ri-bioethanol-plant-started.html>. News of the reactivation. "Ethanol Gasoline Starts Trial, PTPN Group Supports Acceleration of Eco-Fuel Program," 8 Juni 2023, <https://holding-perkebunan.com/ethanol-gasoline-starts-trial-ptpn-group-supports-acceleration-of-eco-fuel-program/?lang=en>.

²⁴ "Pertamina plans 2026 start-up for 30m litre ethanol plant," QCIIntel.com, 15 Oktober 2024, https://www.qcintel.com/biofuels/article/pertamina-plans-2026-start-up-for-30m-litre-ethanol-plant-30610.html?utm_source=chatgpt.com.

Road to 1.2 Billion Litres Target of Bioethanol



Source: Pertamina

3.3. Domestic Market Obligation and Subsidies

In comments to the media, the president director of state-owned PT Sinergi Gula Nusantara (SGN), John Anis, recommended a domestic market obligation (DMO) to ensure sufficient supplies of molasses to produce bioethanol²⁵.

DMO's are more closely associated with Indonesia's coal industry. In 2024, the Ministry of Energy and Mineral Resources (ESDM) set the coal DMO at a minimum of 25% of production²⁶.

Molasses exports increased sharply in 2025 to US\$ 171 million, up from US\$ 101.2 million in 2022. Applying a 25% DMO to the midpoint (US\$ 134.6 million) implies roughly US\$ 34 million in lost annual export revenue, assuming export values remain constant.

Subsidy Burden

The cost of bioethanol in Indonesia is volatile and on average is more expensive than even non-subsidized gasoline. Mixing bioethanol with subsidized gasoline, which comprises roughly 90 percent of gasoline sold at the pump, will require subsidies of Rp 3.3 trillion (US\$ 200 million) a year to offset Indonesia's higher logistics cost and smaller scale economies.

ESDM publishes the monthly market index price (Harga Indeks Pasar) for bioethanol by ministerial decree. The average monthly price of bioethanol over 20 months since early 2024 was Rp 13,420 per litre.

On June 30 the ministry of trade announced plans to free up the market somewhat for ethanol and molasses by including the commodities on lists of "other fuels" no longer requiring specific import approval.

²⁵ Muhdi Qorib, "Pertamina NRE Dukung Akselerasi Insentif Bioetanol untuk Swasembada Energi," Ruangenergi.com, 16 Mei 2025, <https://www.ruangenergi.com/pertamina-nre-dukung-akselerasi-insentif-bioetanol-untuk-swasembada-energi/>.

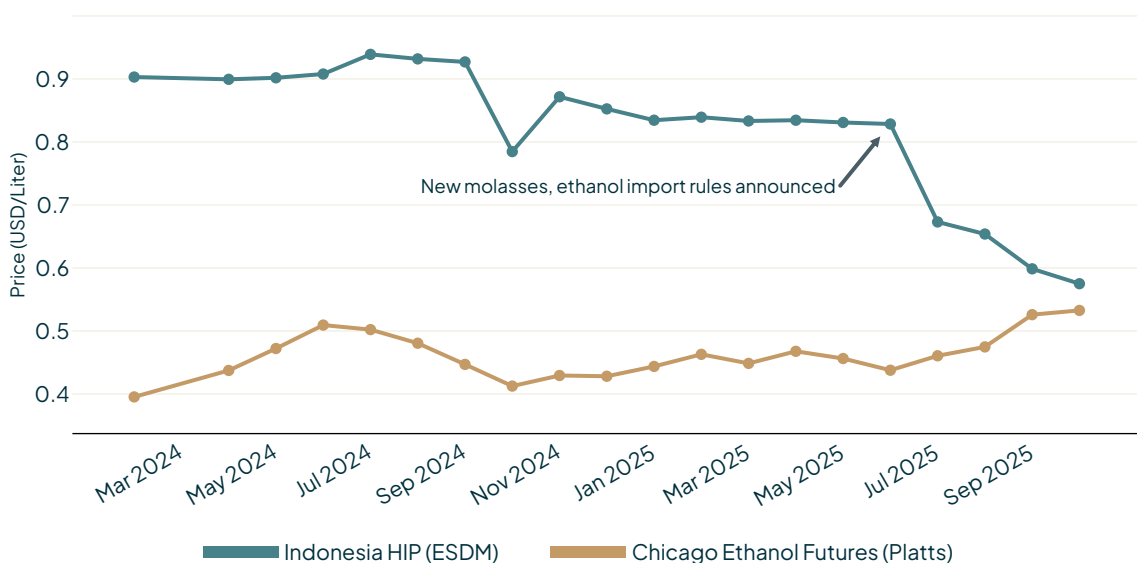
²⁶ Keputusan Menteri ESDM Nomor 139.K/HK.02/MEM.B/2021

The regulation, Peraturan Menteri Perdagangan (Permendag) Nomor 20 Tahun 2025, on the Policy and Regulation of Imports of Chemicals, Hazardous Materials, and Mining Products, went into effect on August 29, 2025, but not before the price of molasses, a main ingredient for the fuel slumped 70 percent²⁷.

On 19 September, the ministry of trade published Permendag No. 32/2025 which reimposes requirements import permits reversing its June regulation.

Indonesia produces on average 1.6 million tonnes of molasses a year, according to media reports citing Fathudn Rosid, the head of the Indonesian Sugarcane Farmers Association. The Rp 1,700 per kilo drop in the price of molasses represented a potential annual loss of Rp 2.7 trillion (US\$ 163 million) to sugarcane growers if the June regulation remained.

Comparative Monthly Bioethanol Market Prices (USD/Liter)



Source: Ministry of Energy and Minerals

As of November 2025 roughly 1 million tonnes of molasses went unused²⁸. With molasses comprising the bulk of the expense of producing bioethanol, lower domestic prices were the result. The January 2026 price for bioethanol was Rp 8,438. That's compared with Rp 13,436 a year earlier.

With import controls for molasses back in place the price for the commodity as well as bioethanol seems likely to increase again as domestic stocks as the domestic supply is exhausted.

²⁷ Kompas.com, "Harga Tetes Anjlok ke Rp 700, Produsen Terancam Hentikan Operasional" (Molasses Price Drops to Rp 700, Producers Threaten to Halt Operations), Kompas.com, September 20, 2025, accessed October 5, 2025. <https://tinyurl.com/aptrisugar>

In 2024, Indonesia budgeted Rp 56.1 trillion to subsidize Pertalite gasoline at Rp 10,000 per litre – a subsidy of Rp 1,700 per litre. At current expenditure this would suggest a subsidy of nearly Rp 60 trillion in 2030 when the government is targeting production of 1.2 billion litres of fuel grade bioethanol.

We calculate the subsidy for ethanol from 2030 because that is the year when the government is targeting annual bioethanol production of 1.2 billion litres.

For the sake of fairness we assume ethanol will feature consistently throughout the gasoline fuel supply -- including for subsidized fuel -- from 2030 because local supplies are enough to meet demand. It is at this point when the government may face pressure to control the price of ethanol blended gasoline. Until then, ethanol may appear in greater concentrations in non-subsidized brands of gasoline as local supplies become available.

3.4. Summary of Costs

- Merauke Project: **US\$ 8 billion** (sugarcane estates, mills, ethanol plants, power plant).
- Production Expansion CAPEX: **US\$ 1.7 billion**.
- Lost Export Revenue: **US\$ 340 million by 2035**.
- Subsidy Burden: US\$ 200 million per year at current prices from 2030 for a total of **US\$ 1 billion** by 2035.

Total indicative costs in excess of US\$ 11 billion, excluding tax holidays, indirect or unforeseen expenditures such as compensation to sugar producers for ethanol imports to compensate for domestic shortages, land acquisition for ethanol production, environmental remediation, higher than expected logistics costs and potential disputes with indigenous populations.

²⁸ "Indonesia's Ethanol Industry Encouraged to Take Advantage of Massive Molasses Surplus," AgriInsight, November 25, 2025, <https://agriinsight.com/indonesias-ethanol-industry-encouraged-to-take-advantage-of-massive-molasses-surplus/>.

TRANSPARENCY AND GOVERNANCE

Politically Connected Conglomerates

Two powerful business groups stand out in the early stages of the project:

- Jhonlin Group: Led by Andi Syamsuddin Arsyad, who is better known as Haji Isam and has deep political ties within the Prabowo administration.
- Plantation company First Resources through closely linked PT Global Papua Abadi which is controlled by the Fangiono family.

Between them the companies have deployed hundreds of millions of dollars of capital and are likely the beneficiaries of tax holidays and tariff waivers and other preferential treatment.

Both groups are opaque and have attracted controversy. In the case of First Resources, the patriarch had been jailed for the illegal use of oil palm plantations.

Jhonlin Group

The company was founded and owned by Andi Syamsuddin Arsyad, a mining and transport magnate.

In August 2025, Syamsuddin's family's net worth soared past Rp 20 trillion (US\$ 1 billion) during the days immediately after President Prabowo awarded the 48-year-old the Bintang Mahaputera Utama which is reserved for individuals who have demonstrated extraordinary service to the country in fields, including politics, economics, and culture.

Syamsuddin's 120 meter yacht, the J7 Explorer, was built by PT Bahtera Bahari Shipyard in Batam in 2022 and may have cost in the range of US\$ 180 million and to US\$ 360 million a survey of media articles of yachts of this length shows. Transponder tracking data show that it is frequently positioned at the port of Wanam in South Papua indicating Syamsuddin's personal involvement in the initiative.

Syamsuddin's individual political connections along with those of his children are numerous and profound, potentially disincentivising any effort to conduct oversight over his interests. These links include at least two members of Prabowo's administration.

PT Yastra Energy, in which Syamsuddin owns a 40% stake, is majority-owned by PT Tiran Indonesia, a metals mining firm 60% owned by Agriculture Minister Andi Amran Sulaiman.

One cabinet member is a clear beneficiary of his links with Syamsuddin: Transport minister and former Jhonlin executive Dudy Purwagandhi.

Purwagandhi owns nearly 16 percent of East Kalimantan oil palm plantation PT Pradiksi Gunatama, which is majority owned by Syamsuddin’s adult children Liana Saputri and Jhony Saputra (Jhonlin is an amalgam of Syamsuddin’s children’s names). The pair each owns 38 percent of Pradiksi Gunatama.

The value of Pradiksi Gunatama’s shares nearly tripled in the days that followed Syamsuddin's receipt of the Bintang Mahaputera Utama. The value of Pradiksi Gunatama’s shares nearly tripled in the days following Syamsuddin’s receipt of the award.

Although not the nation’s highest civilian honor (Bintang Republik Indonesia holds greater prestige), the award nevertheless appeared highly valued by the market. Purwagandhi’s stake in Pradiksi Gunatama has reached an estimated Rp 2.8 trillion (US\$ 170 million) **by September 2025**.

Market Summary > **Pradiksi Gunatama Tbk PT**

17,72 trillion IDR

Market capitalization

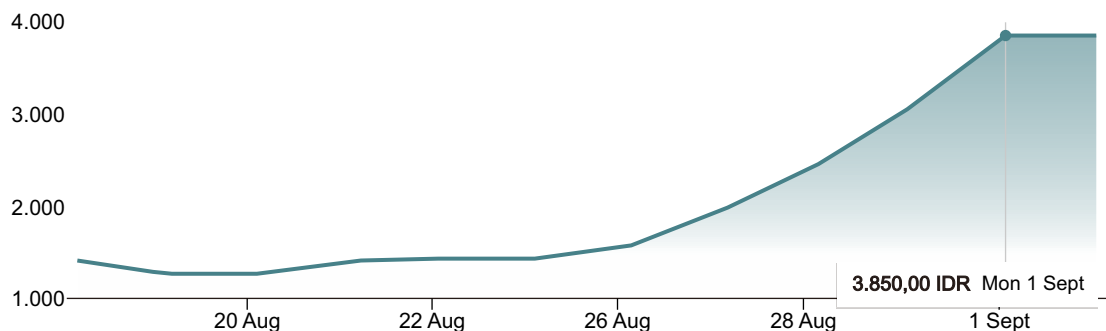
3.850,00 IDR

+ Follow

+2,430.00 (171.13%) ↑ past month

1 Sept, 16.05 WIB • Disclaimer

1D | 5D | **1M** | 6M | YTD | 1Y | 5Y | Max



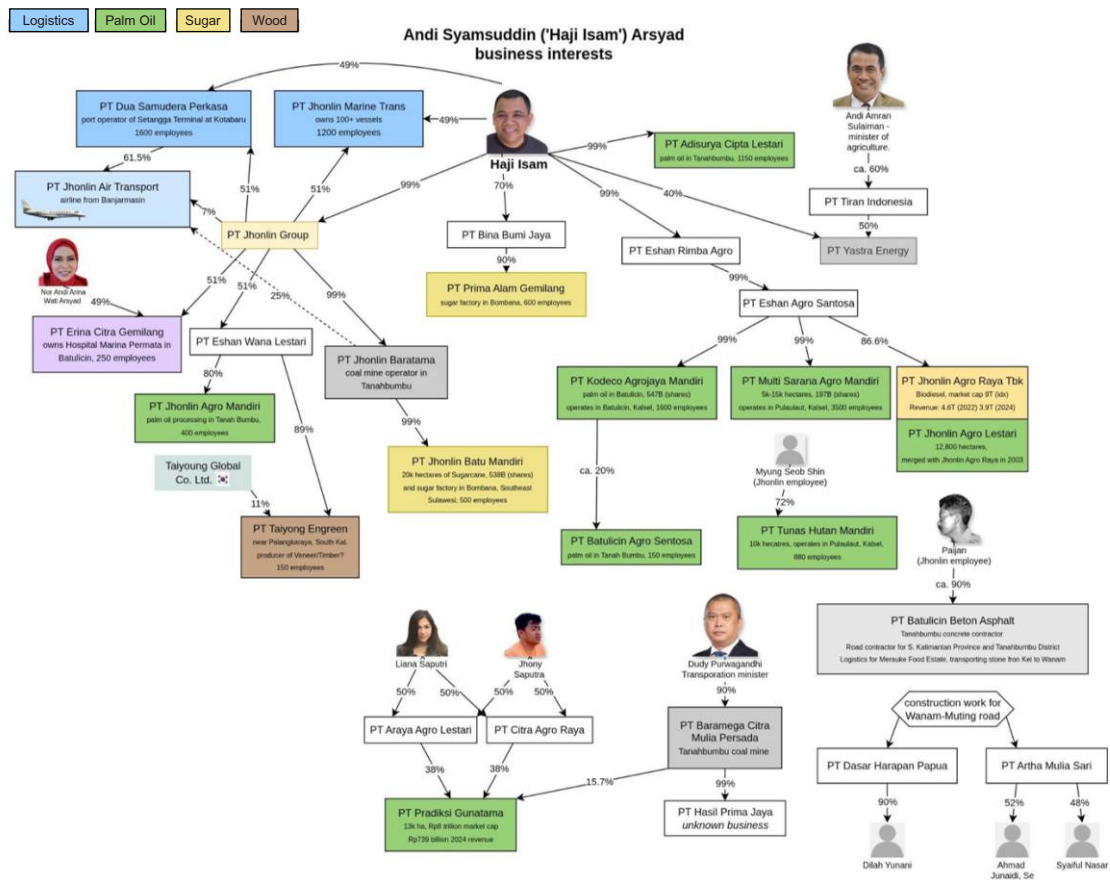
Open	-	Mkt cap	17,72T	52-wk high	3.850,00
High	-	P/E ratio	145,20	52-wk low	378,00
Low	-	Div yield	0,054%	Qtrly Div Amt	0,520

Source: IDX

The ownership of some of Syamsuddin’s businesses are owned by proxies, or his employees. The 90 percent owner of PT Batulicin Beton Asphalt, which is supplying road building material to the food estate is an employee by the name of Paijan – better known as Pak Lek.

Paijan joined Jhonlin in 2001 as a construction worker and appears to have become a senior manager²⁹. On paper corporate filings purport his 90 percent stake is worth nearly Rp 11 billion.

Paijan appears to have achieved a measure of status within the Jhonlin Group and his ownership may be compensation for this. Or he may be acting as a nominee acting on behalf of Haji Isam.



PT Global Papua Abadi and First Resources

Nominee arrangements feature in the relationship between PT Global Papua Abadi (PT GPA) and First Resources, a large Singapore based oil palm plantation company.

Corporate filings show that the owners of PT Global Papua Abadi (PT GPA) – so far the only company in the area to have the right to operate a plantation under a Hak Guna Usaha at the food estate – is owned by the immediate family of First Resources’, chief executive, Ciliandra Fangiono.

²⁹ Jhonlinmagz, "Paijan 'Pak Lek' dari palu, gergaji dan meteran, hingga duduk di kursi Manager," July 4, 2013, <https://www.jhonlinmagz.com/paijan-pak-lek-dari-palu-gergaji-dan-meteran-hingga-duduk-di-kursi-manager/>.

Fangiono is the eldest son of First Resources founder Martias Fangiono and last year was reportedly worth US\$ 2.4 billion³⁰.

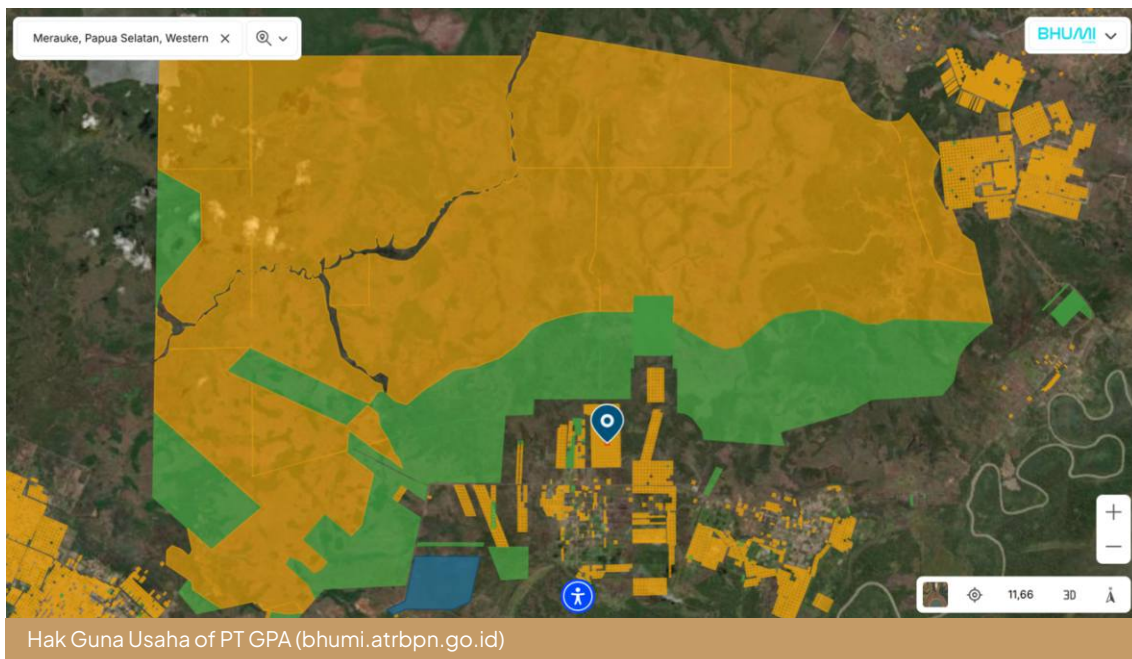
Media reports have speculated that First Resources is participating in the food estate after Martias joined former President Joko Widodo in July 2024 to oversee planting of the first crop of sugarcane. First Resources has denied involvement in PT GPA³¹.

First Resources is based in Singapore meaning that as a foreign company it cannot own land directly and must work through an Indonesian company.

To be sure, the family's ownership of PT GPA is indirect and buffered through a web of holding companies.

Ciliandra Fangiono's niece, Angelia Sudirman, owns 99 percent of PT Merauke Sugar Group. Merauke Sugar in turn owns PT Merauke Nusantara Manis. It's this company that owns PT GPA as well as PT Murni Nusantara Mandiri, PT Agrindo Gula Nusantara and PT Sejahtera Gula Nusantara.

All four of the subsidiaries that Merauke Sugar owns through its subsidiaries are capitalized at a total of Rp 3 trillion – a significant sum suggesting work may be imminent on the 564,000 hectares³² – roughly a quarter of the Merauke Food Estate – it controls through its concessions.



³⁰ "Ciliandra Fangiono," Forbes, November 12, 2024, <https://www.forbes.com/profile/ciliandra-fangiono/>.

³¹ "Companies Developing Jokowi's Food Estate Project in Merauke," Tempo.co, September 25, 2024, <https://en.tempo.co/read/1920811/companies-developing-jokowis-food-estate-project-in-merauke>

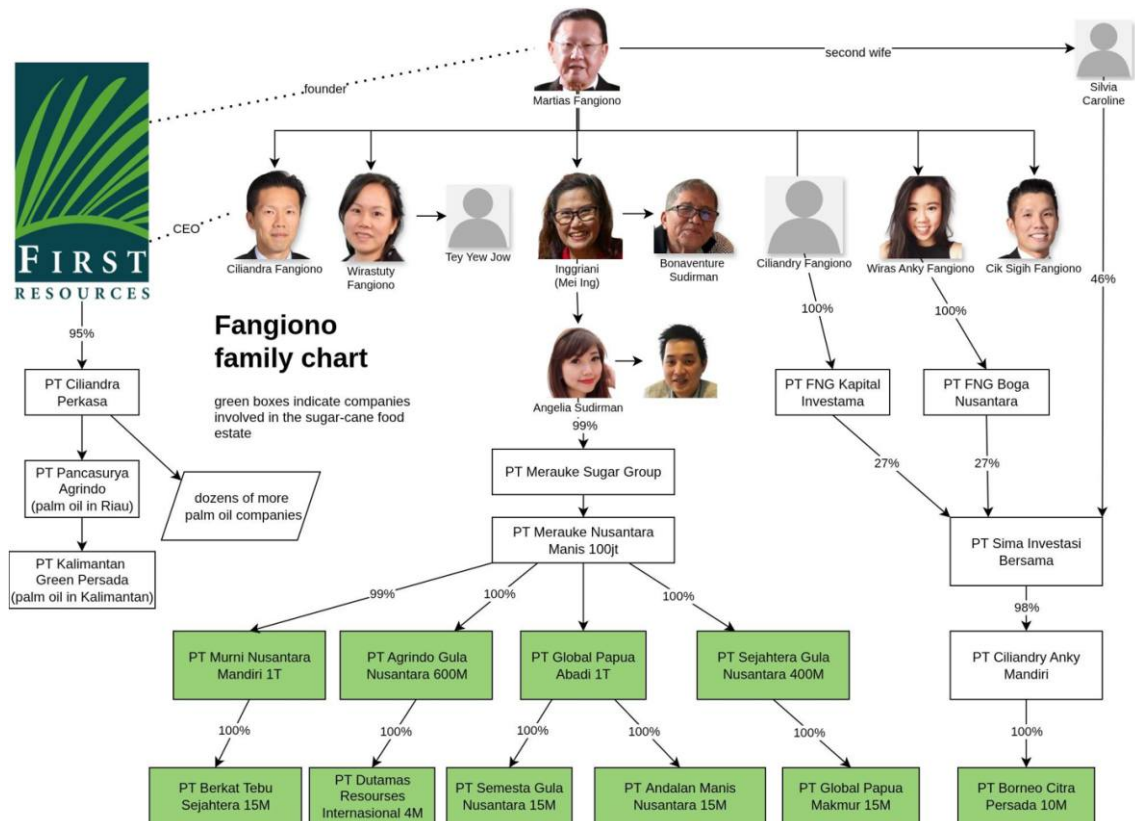
³² Ibid.



The following Merauke Sugar subsidiaries hold sugarcane plantation concessions in South Papua³³:

- 1 PT Global Papua Abadi
- 2 PT Andalan Manis Nusantara
- 3 PT Semesta Gula Nusantara
- 4 PT Dutamas Resources International
- 5 PT Borneo Citra Persada
- 6 PT Global Papua Makmur
- 7 PT Murni Nusantara Mandiri
- 8 PT Berkat Tebu Sejahtera
- 9 PT Agrindo Gula Nusantara
- 10 PT Sejahtera Gula Nusantara

³³ "Daftar Perusahaan Penggarap Proyek Food Estate Merauke Jokowi," *Tempo.co*, September 25, 2024, <https://www.tempo.co/ekonomi/daftar-perusahaan-penggarap-proyek-food-estate-merauke-jokowi-5855>.



It's unclear how active Angelia is in the management of PT GPA or the other subsidiaries. She is listed as a commissioner of First Resources's other oil palm business.

The outlier of the group is PT Borneo Citra Persada, which is not grouped under PT Merauke Sugar Group but rather is owned by two of Martias's other children, Cilandry Fangiono and Wiras Anky Fangio as well as his second wife, Silvia Caroline.

The holding company that owns a 100 percent stake in PT Borneo Citra Persada is called PT Cilandry Anky Mandiri.

Background on Martias Fangiono

In 2007, former governor of East Kalimantan, Maj Gen (ret) Suwarna Abdul Fatah, lost his Supreme Court appeal of a corruption verdict. The governor had to complete a four year sentence for having wrongfully issued plantation development permits from 1999 to 2002. The crimes enabled a local timber baron, Martias, to harvest Rp 360 billion worth of timber without developing a palm oil plantation. (Source: Reformasi Weekly Newsletter 2007-December-14).

On 11 December 2007, the Supreme Court ruled that the financial penalty previously imposed on Martias was insufficient and ordered Martias to pay a penalty of approximately US\$ 38.3 million. He was convicted for corruption with 1.5 year prison sentence. (Source: Reformasi Weekly Newsletter 2007-December-14)

ELECTRIC VEHICLES vs BIOETHANOL

Efforts to reduce carbon emissions in the transport sector were already underway in the form of tax rebates on electric vehicles as a means of supporting a shift away from internal combustion engines.

According to GAIKINDO, sales of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) reached 44,266 units during January–July 2025. That figure already equals the entire volume of EV and PHEV sales for full-year 2024, underlining the speed of EV adoption³⁴.

“Moderate” use of tax rebates will stimulate demand such that EVs will comprise roughly 29 percent of all new vehicle sales in 2030, according to PwC³⁵.

In February 2024, the Ministry of Finance announced that it would cover most of the 12 percent value-added tax (VAT) on certain EVs, with eligibility linked to domestic content requirements. In December, the government lifted the luxury goods sales tax (PPnBM) for imported EV’s. The incentives effectively reduce the price of EVs that consumers would otherwise have to pay by as much as 30 percent.

The rebates also amplify the impact of falling EV prices especially from Chinese manufacturers³⁶.

Assuming annual light vehicle sales of roughly 1 million units by the end of the decade and ongoing “moderate” use of rebates during the next five years, EV sales may total roughly 300,000. The lost income from the tax rebates would cost roughly US\$ 2.9 billion.

To be sure, Indonesia’s reliance on fossil fuels to power its electric grid leads to only modest carbon savings through the use of electric vehicles³⁷.

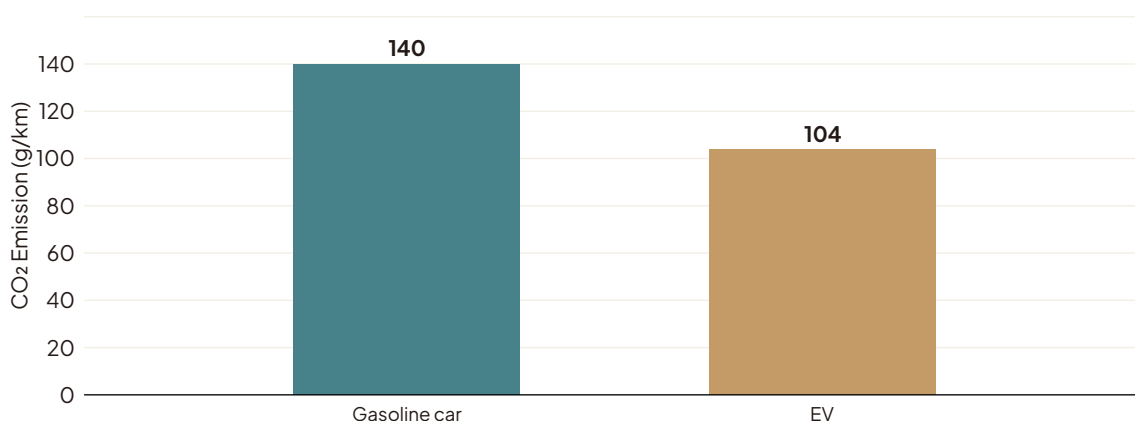
³⁴ GAIKINDO, "Whole Sales of Battery Electric Vehicle (BEV) and Plug-in Hybrid Electric Vehicle (PHEV) by Brands in Indonesia, January-July 2025," <https://www.gaikindo.or.id/whole-sales-of-battery-electric-vehicle-bev-and-plug-in-hybrid-electric-vehicle-phev-by-brands-in-indonesia-january-july-2025/>

³⁵ PwC, "Indonesia's EV market shows strong growth despite broader industry challenges," PwC, June 17, 2025, <https://www.pwc.com/id/en/media-centre/press-release/2025/english/indonesias-ev-market-shows-strong-growth-despite-broader-industry-challenges.html>

³⁶ KatadataOTO, "Harga Mobil Listrik Juli 2025, Chery E5 Turun Rp 100 Jutaan," KatadataOTO, July 3, 2025, <https://otomotif.katadata.co.id/mobil/harga-mobil-listrik-juli-2025-chery-e5-turun-rp-100-jutaan-15952>

³⁷ Lauri Myllyvirta, Hubert Thieriot, and Katherine Hasan, "Work From Home (WFH) and Other Gimmicks Cannot Clear Jakarta's Air," Centre for Research on Energy and Clean Air (CREA), September 12, 2023, accessed October 5, 2025, <https://energyandcleanair.org/work-from-home-wfh-and-other-gimmicks-cannot-clear-jakartas-air/>

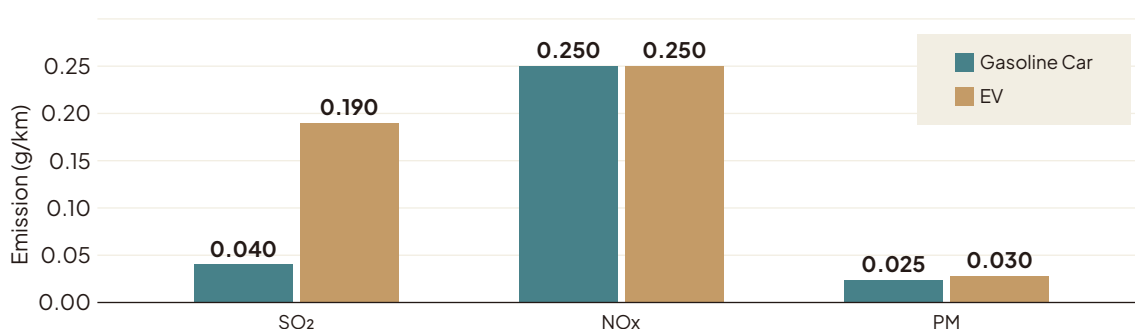
CO₂ Emissions Comparison (Tailpipe + Electricity Generation)



Source: CREA

A calculation by the Centre for Research on Energy and Clean Air in August 2023 found that with 70 percent of the Java-Bali Grid powered by coal generated electricity, EV usage amounts to shifting the pollution from the tailpipe to the power stations for most emissions.

Emissions Comparison: Gasoline Car vs. EV



Source: CREA

While carbon emissions decline a quarter NO_x gases and particulate matter is little changed, for sulfur dioxide there is a fourfold spike in emissions per kilometer.

However PLN's existing plans to add gas and renewable energy generating capacity in order to cap emissions at 290 million tons by 2030 will make the country's grid less carbon intensive, by reducing CO₂ emissions nearly a fifth from their business as usual conditions.

Still, the government's support of EVs and a shift away from internal combustion engines seizes on an ongoing technological shift that is accelerated with tax rebates, reduces pollution and attracts foreign investment³⁸. Promoting EVs avoids disrupting local communities in South Papua as well as the vast environmental devastation from deforestation in order to achieve annual production of 1.2 billion litres of bioethanol. It also mitigates influence from parties with vested interests in the food estate.

³⁸ Aniruddha Ghosal, "Indonesia's clean energy future is at the center of a supply struggle between the US and China," *Associated Press*, September 22, 2025, <https://apnews.com/article/indonesia-china-us-clean-energy-transition-partnership-606aa368441687ddee61adabd3360d71>.

Driving an EV 20,000 km reduces fuel imports by as much as 1,320 litres and save owners nearly Rp 6.9 million per year in operating costs, according to a December 2025 report published by the Institute for Essential Services Reform³⁹. Fuel savings in 2025 were expected to amount to 185 million litres, owing to EV use, the report said.

While CO2 emissions from the development of EV supply chains are significant, most have already been incurred. Developing a bioethanol supply chain at a time when transportation is becoming electrified unnecessarily adds a new source of CO2 emissions for the purposes of producing a fuel additive used in internal combustion engines which are anyway losing favor.



³⁸ "Economic Benefits of Up to Rp544 Trillion per Year Vanish as EV Incentives End," *Institute for Essential Services Reform (IESR)*, December 19, 2025, <https://iesr.or.id/en/economic-benefits-of-up-to-rp544-trillion-per-year-vanish-as-ev-incentives-end/>.

COST OF PRODUCTION

Indonesia's cost challenges relative to Brazil

Brazil offers a benchmark for bioethanol production, highlighting structural challenges in Indonesia's approach.

Bioethanol production costs in Indonesia is at least twice as expensive per litre compared with Brazil owing to its use of more advanced technology, and readily available feedstock and consistent regulation⁴⁰.

The Brazilian government spent the equivalent of US\$ 25 billion in today's dollars establishing its ethanol industry from 1979 until the mid-1990's when it began phasing out its subsidies⁴¹.

During that time Brazil built an extensive supply chain based on advanced production technology and research into suitable varieties of sugarcane.

The result is an ethanol industry that uses sugarcane as its feedstock rather than molasses as in Indonesia. Sugarcane is a higher energy-yielding source that provides both fermentable sugars. Residues including bagasse are used for co-generation while vinasse – a byproduct from sugarcane distillation – is used as fertilizer⁴².

In contrast, Indonesia primarily relies on molasses, a byproduct of sugar refining, which is also in demand from other industries including for food flavoring and alcohol production⁴³ potentially raising costs.

Brazil's ethanol pipelines, its distribution systems, and a nationwide network of flex-fuel stations drives down logistics costs. This infrastructure ensures access to ethanol or blended fuels⁴⁴.

Indonesia's supply chain, by contrast, is fragmented. Ethanol blending has been limited to small-scale pilots, such as Pertamina's trials of E5 and E10 blends in a few cities⁴⁵.

Brazil's success lies in the synergy of feedstock choice, integrated production, consistent policy, and infrastructure investment. Indonesia, by relying on molasses and lacking long-term policy incentives, faces high costs and limited uptake.

⁴⁰ J.G.G. Jonker, F. Van Der Hilst, H.M. Junginger, O. Cavalett, and M.F. Chagas, "Outlook for ethanol production costs in Brazil up to 2030, for different biomass crops and industrial technologies," *Applied Energy*, 147 (June 2015): 593–610

⁴¹ OECD and International Transport Forum, *Biofuels: Linking Support to Performance*, Round Table No. 138 (Paris: OECD Publishing, 2008)

⁴² J. Goldemberg, "The Brazilian biofuels industry," *Biotechnology for Biofuels* 1, no. 6 (2008), <https://link.springer.com/article/10.1186/1754-6834-1-6>.

⁴³ A.J. Purwanto and N.A. Utama, "Indonesia's Bioethanol Goals: A Reality Check," *ERIA News and Views*, ERIA, September 4, 2025, <https://www.eria.org/news-and-views/indonesia-s-bioethanol-goals--a-reality-check>.

⁴⁴ *Ibid* No.34.p

⁴⁵ Aditya Putra Perdana, "Pasokan Bioetanol yang Berkelanjutan Jadi Tantangan," *Kompas*, 2 August 2023, <https://www.kompas.id/artikel/pasokan-bioetanol-yang-berkelanjutan-jadi-tantangan>

Without structural reforms in feedstock, infrastructure, and long-term policy incentives, Indonesia’s ethanol industry is unlikely to achieve cost competitiveness with Brazil or even parity with gasoline.

Contrasting bioethanol production in Brazil and Indonesia:

Feature	Brazil	Indonesia
Primary Feedstock	Sugarcane	Molasses (a byproduct of sugar production)
Production Costs	US\$ 0.35 – 0.40 per litre (globally competitive) Low and highly competitive. Achieved through integrated mills that use bagasse for energy co-generation and vinasse as fertilizer, minimizing waste and costs.	US\$0.70–0.90 per litre (≥2x Brazil) High and uncompetitive. Faces high feedstock costs due to competition from other industries (e.g., MSG). Lack of integrated facilities means higher energy consumption and waste management costs.
Technological Maturity	Highly advanced. Decades of research and development have led to efficient, large-scale production technologies and high-yielding crop varieties.	Developing. Relies on imported technology, which increases capital costs. Lack of widespread, modern infrastructure and a clear strategy for using alternative, non-food feedstocks.
Logistics & Infrastructure	Mature and well-developed. Extensive network of sugarcane farms, mills, pipelines, and a nationwide distribution system for both pure and blended ethanol.	Fragmented and underdeveloped. Supply chain is scattered, and there is a lack of specialized infrastructure for ethanol storage and transportation. The rollout of bioethanol is limited to pilot projects in a few fuel stations.
Government Policy	Consistent and long-term. Historically, strong government support through the Proálcool program (1975), subsidies, and a market-driven approach like RenovaBio (2017). Has created a reliable market for flex-fuel vehicles.	Inconsistent and focused on biodiesel. Bioethanol policies have been less consistent and lack a dedicated financial scheme to cover the price gap with gasoline, unlike the highly successful palm oil-based biodiesel program.

Feature	Brazil	Indonesia
Market Competitiveness	Globally competitive. Brazil is a major global exporter of ethanol, and its domestic product is often cheaper than gasoline, making it an attractive fuel choice for consumers.	Not competitive. The high production cost of bioethanol makes it more expensive than gasoline, hindering its commercial viability and widespread market adoption.
Global Standing	2nd largest producer globally (after US), 27–30 billion L/year⁴⁶.	<0.1 billion L/year, pilot scale⁴⁷.



⁴⁶ Sources: International Energy Agency (IEA), *Renewables 2023 and Renewables 2024 outlooks*; U.S. Department of Agriculture (USDA), *Brazil Biofuels Annual 2023/2024*.

⁴⁷ Sources: International Renewable Energy Agency (IRENA), *Renewable Energy Statistics 2023*; Indonesia Ministry of Energy and Mineral Resources (ESDM), *Handbook of Energy & Economic Statistics of Indonesia 2023*.

CONCLUSION

Indonesia's bioethanol initiative reflects the country's long-standing ambition to achieve energy security, food self-sufficiency, and reduced dependence on fuel imports.

Top-down planning by distant political elites risks mirroring past food estate failures. Issues including logistics costs and suitability of crop varieties remain as relevant today as they were during the Suharto era when central government first embarked on food estate schemes.

What's different is the scale and the expense. At least **US\$11 billion** in capital expenditure and subsidies over the next decade is at risk of waste and self dealing by politically connected conglomerates.

These costs are amplified by South Papua's logistical challenges and the complexity of building a new supply chain from scratch. In contrast, alternative pathways such as scaling up electric vehicles and renewables promise lower costs, reduced disruption and lower carbon emissions.

While it no longer pays specific subsidies to its ethanol industry, Brazil's experience shows that success requires vast resources and consistent regulation over decades.

The irony is that Indonesia is already meeting with success when it comes to reducing carbon emissions. Tax rebates timed with sharp falls in the price of electric vehicles have led to their rapid uptake.

Maintaining some tax relief in the medium term would not only support Indonesia's own EV and battery industry but also result in nearly the same carbon savings as building a bioethanol industry from scratch with no additional disruption to communities or mass deforestation.

The vast scale of deforestation that fully realizing the Merauke Food Estate would require invites opprobrium from foreign media, civil society, investors and ultimately overseas consumers. This negative sentiment may translate into added scrutiny of Indonesia's commodity exports.

The EU's European Union Deforestation Regulation requires members to audit 9 percent of the cattle, cocoa, coffee, palm oil, rubber, soy and wood they import from countries deemed "high risk" to ensure they are not the product of deforestation.

Indonesia’s current risk rating is “standard”, the second of the three deforestation designations under the EUDR – requiring audits of 3 percent of listed commodity imports.

The Merauke Food Estate and the development of a bioethanol industry represents a flawed strategy marked by incomplete planning and weak governance. It sacrifices the country’s resources, governance and the environment for dogmatic notions of self sufficiency. It is indeed an irony that a plan aimed at addressing climate change and stimulating investment would risk harming both.

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