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Report Highlights:

Indonesia's aggressive biodiesel blending mandate rising from 35 percent to 40 percent in early 2025 has resulted in no exports due to limited production capacity. Expansion to B50 will require both significant subsidies and additional production capacity. The bioethanol market is projected for small growth in 2025, with E5 sales expected to remain limited in 2025 as the majority of the gasoline market is captured by subsidized fuel. In May and June 2025, the Government of Indonesia issued two conflicting regulations on biofuels, with one appearing to block biofuel imports while the other simplifies import processes. It remains unclear how these regulatory changes relate to the bilateral trade deal announced on July 22, 2025.

General Terms and Abbreviations:

BBD	Biomass-based Diesel
Bpd	Barrels per day
CPO	Crude Palm Oil
ESDM	Ministry of Energy and Mineral Resources
EU	European Union
FAME	Fatty Acid Methyl Ester (aka biodiesel)
GHG	Greenhouse Gas
HDRD	Hydrogenation Derived Renewable Diesel (also known as Hydrotreated Vegetable Oil)
HEFA	Hydro-processed Fatty Acid Esters and Fatty Acids (ASTM-certified SAF pathway)
HVO	Hydrotreated Vegetable Oil (older term still used for HDRD)
ISPO	Indonesian Sustainable Palm Oil
KLHK	Ministry of Environment and Forestry
LCA	Life Cycle Analysis
MOT	Ministry of Trade
MW	Mega Watt
GW	Giga Watt
NDC	Nationally Determined Contribution
PFAD	Palm Fatty Acid Distillate
PME	Palm oil Methyl Ester
POME	Palm Oil Mill Effluent
PKFAD	Palm Kernel Fatty Acid Distillate
PTA	Preferential Trade Agreement
BDPO	Refined Bleached Deodorized Palm Oil
RON	Research Octane Number
RSPO	Roundtable Sustainable Palm Oil
SAF	Sustainable Aviation Fuel
UCO	Used Cooking Oil

Section I. Executive Summary

Biodiesel

Indonesia continues to expand its domestic market by increasing the biodiesel blend rate mandate from 35 percent to 40 percent in 2025. With a higher blending rate, biodiesel consumption is expected to reach 14.5 billion liters in 2025, a 10 percent rise from 2024. Biodiesel distribution was on track in mid-2025, despite having no subsidy for the non-public service obligation (PSO) sector.

The increased use of biodiesel in the blending mandate program reflects the Government of Indonesia (GOI)'s strong bid for energy self-sufficiency. To that end, the GOI increased palm oil export levies in May 2025 aiming to secure biodiesel program subsidies and curbed exports on feedstocks such as used cooking oil (UCO) and palm oil mill effluent (POME). Exports of biodiesel were zero between October 2024 and May 2025.

The GOI is preparing to increase the blend rate to B50 for 2026. A technical test for B50 has been completed and will be followed by a road test. Given current production capacity, implementation of B50 in 2026 will require sizeable additional capacity and subsidies. Shifting to B50 is estimated to require 19-20 billion liters of biodiesel.

Ethanol

Indonesia committed to using sugarcane for its ethanol industry as reflected in Presidential Regulation 40/2023 on sugar self-sufficiency and bioethanol. In July 2024, a large-scale sugarcane planting program commenced with a target of establishing four new sugar factories in southern Papua.

By 2024, Indonesia's bioethanol market had grown slightly with more sales of E5. Starting in 2023, Pertamina's (an Indonesian state-owned oil and natural gas corporation) E5 sales expanded to more cities in Java Island. The number of gas stations selling E5 increased to 119 in early 2025 out of over 7,800 total gas stations which sell several types of fuels. Meanwhile, there are 6,150 smaller gas stations operated by private small companies in partnership with Pertamina which sell only one type of gasoline (RON 92) and can have limited operations due to being in remote areas. Pertamina seeks to operate 200 E5 gas stations by the end of 2025. As the E5 market targets the unsubsidized gasoline segment, it is estimated that the E5 market will reach approximately 1 percent of the gasoline market in Indonesia. Since no official roadmap has been issued, the estimated timing for hitting a 1 percent blend rate remains unclear.

In May and June 2025, the Government of Indonesia issued two conflicting regulations on biofuels, with one appearing to block biofuel imports while the other simplifies import processes. In May 2025, the GOI published ESDM regulation 4/2025, which prohibits biofuel companies from importing biofuels. However, the regulation also stipulates that for blending purposes, fuel companies must prioritize local biofuels. This led to confusion for the biofuel industry, since the regulation implies that no parties can import fuel ethanol, since fuel ethanol can be only imported by biofuel companies which hold permits from ESDM to run biofuel production and trade.

However, the GOI then issued a deregulation package in June 2025 which removes requirements for import permits for fuel ethanol starting at the end of August 2025. Specifically, Ministry of Trade regulation 16 /2025 removes the “Other Fuel” category, which includes fuel ethanol, from the limited and prohibited list (LARTAS). This action implies that biofuels can be imported by any companies without recommendation from the technical ministry (including ESDM). It remains unclear how these regulatory changes relate to the [trade deal between the United States and Indonesia, which was announced on July 22, 2025](#).

Under the current regulations (i.e., before the above-described deregulation kicks in), biofuels were under the Commodity Balance policy. This mechanism requires importers to submit their needs plan by September and then an interministerial meeting establishes an approved import quota based on a recommendation from the technical ministry. The result of the interministerial meeting was used by importers to apply for import licenses.

Indonesia imported about 60 percent of the gasoline used in 2024. Substituting imported ethanol, whether pre-blended in gasoline or for domestic blending, would reduce finished gasoline import costs and lower consumer fuel prices. Indonesia’s Most Favored Nation (MFN) import duty for ethanol at 30 percent is designed to protect local industry, but industry sources note it has hampered growth of the dormant bioethanol mandate program. Import opportunities are further limited by a general lack of competition in the fuels market with Pertamina’s dominance in the energy sector.

On July 22, 2024, the [White House announced a trade deal with Indonesia](#) which, among other benefits, “will eliminate tariff barriers, on a preferential basis, on over 99% of U.S. products exported to Indonesia across all sectors, including for all agricultural products.” The list of tariff lines subject to preferential tariffs has not yet been published.

Section II. Policy and Programs

Indonesia began adopting national-level biofuels policies in 2006 with the issuance of [Government Regulation \(GR\) Regulation 1](#) concerning the procurement and usage of biofuels. In support of the regulation, the President issued Presidential Decree Regulation 10/2006 establishing a National Biofuels Development Team, responsible for supervising the implementation of biofuel programs and creating a blueprint for biofuels development. The blueprint, which focuses on economic development goals rather than environmental goals, aims to (1) alleviate poverty and unemployment, (2) drive economic activity through biofuel procurement, and (3) reduce domestic fossil fuel consumption. In 2007, the Indonesia’s House of Representatives (DPR) passed the Energy Law ([UU 30/2007](#)) to strengthen regulations prioritizing the use of renewable energy.

The National Energy Policy (KEN) established through [GR Regulation 79/2014](#) is now the most important policy basis for the biofuels program. The GOI is preparing to replace GR Regulation 79/2014 to reflect the new administration’s goal of 8 percent economic growth in 2029¹ and the contribution of renewable energy in achieving net zero emissions in 2060.

¹ In [February 2025](#), House of Representative (DPR) approved a government regulation draft on National Energy Policy which will replace GR no 79/2014 as soon as the President signed.

The current KEN targets 23 percent renewable energy use economy-wide by 2025 and 31 percent by 2050². The contribution of biofuels towards meeting these goals, shown in [Presidential Regulation \(PR\) Regulation 22/2017](#), roughly translates to 13.9 billion liters (by 2025) and 52.3 billion liters (by 2050) of biofuel use, respectively. Table 1 provides the plan for biofuel’s contribution to the transportation sector’s energy consumption.

Table 1. Plan of Biofuel Provision for Transportation, 2016-2050

		2016	2025	2050
Biodiesel	Blend rate (%)	20	30	30
	Volume (Bn liter)	2.5	6.9	17.1
Bioethanol	Blend rate (%)	5	20	20
	Volume (Bn liter)	0.1	2.6	11.4
Sustainable Aviation Fuel (SAF) (“Bioavtur”)	Blend rate (%)	2	5	10
	Volume (Bn liter)	0.0	0.1	2.7

Source: PR 22/2017

A. Renewable Energy and GHG Emission Reductions

Indonesia’s latest nationally determined contribution ([NDC](#)) document submitted to the United Nations’ Framework Convention on Climate Change (UNFCCC) in September 2022 shows higher greenhouse gas (GHG) reduction targets of 31.9 percent (unconditional) and 43.2 percent (conditional) by 2030 from 29 percent and 41 percent respectively. The unconditional NDC target represents commitments for emissions reduction without any international assistance. The increased NDC targets reflect strengthened national policies on related topics and anticipated increases in international support, particularly in forestry and energy. The GOI is currently preparing for the Second NDC which will be submitted in October 2025³.

Within the energy sector, the business as usual (BAU) emission scenario below shows emissions without consideration for climate change mitigation policy. The Counter Measure 1 (CM1) emission scenario, with mitigation, considers sector targets without international support. The CM 2 emission scenario considers sector targets with international support. Emission reductions for the energy sector assume biodiesel use, specifically at B30, within the transportation sector covering 90 percent of the total diesel fuel pool under CM1 and 100 percent under CM2. Without certification of the actual carbon intensity of the biofuels being marketed, the values of future goals met will remain questionable. In order to achieve its NDC target, the GOI issued [Law Regulation 7/2021](#) establishing a carbon tax and [PR Regulation 98/2021](#) laying out carbon pricing mechanisms, including (1) carbon trade, (2) result-based payment, (3) carbon tax, and (4) other mechanisms based on the development of science and technology. See [ID2024-0018](#) for more details.

² The 23 percent target is likely unachieved in 2025, as it only reached 14 percent in 2024 –1 percent up from 2023.

³ Indonesia delayed the Second NDC submission as the new administration that inaugurated in October 2024 set new goals, formed new agencies and changed its agencies’ leaderships.

Table 2. Projected BAU and Emission Reduction for the Energy Sector

GHG Emission Level 2010	GHG Emission Level 2030			GHG Emission Reduction			
<i>MTonne CO_{2e}</i>	<i>MTonne CO_{2e}</i>			<i>MTonne CO_{2e}</i>		<i>Percent of BAU</i>	
	BAU	CM1	CM2	CM1	CM2	CM1	CM2
453.2	1,669	1,311	1,223	358	446	12.5	15.5

Source: Indonesia Enhanced NDC 2022

Indonesia's long-term strategy to reduce carbon ([LTS-LCCR 2050](#)) puts forward biofuels as Indonesia's main source of energy in the transportation sector by 2050 (see Table 3). It would gradually replace gasoline with bioethanol and palm oil-based gasoline and replace diesel with palm biodiesel and renewable diesel. However, the strategy does not specifically address jet aviation fuel and the use of sustainable aviation fuel (SAF).

Table 3. Indonesia Transport Energy Source 2050

Energy Source	Contribution
Biofuels	46 percent
Oil Fuels	20 percent
Electricity	30 percent
Natural Gas	4 percent

Source: Indonesia LTS-LCCR, officially submitted to UNFCCC.

B. Policy and Program Aimed Specifically at Biofuels and Fuel Pool Size

Beginning in May 2025, the GOI began issuing contradictory regulations on biofuels (summarized in Table 4). Published in May 2025, [ESDM regulation 4/2025](#) is the latest regulatory framework on biofuel programs, with major considerations on energy self-sufficiency, reduction on GHG emissions, renewable energy use, and the need for biofuel management which aligns with energy transition policy. ESDM regulation 4/2025 replaces the main biofuel regulation: ESDM regulation 12/2015.

In general, ESDM regulation 4/2025 prioritizes domestic production to meet national biofuel demands, notably prohibiting biofuels companies from importing biofuels and requiring them to ensure a continuous supply of biofuels. This regulation also encourages the use of locally sourced feedstocks, organic waste, and other biomaterials to reduce reliance on imported energy sources, aligning with the national goal of energy self-sufficiency. ESDM regulation 4/2025 also orders that fuel companies who are blending must prioritize the use of domestically produced biofuels. Again, this seems to contradictory since the same regulation also prohibits biofuel imports.

In late June 2025, the GOI revised Ministry of Trade (MOT) regulation 8/2024 with MOT regulation 16/2025 on import arrangement by deregulating several commodities, including biofuels. Biofuels, which are categorized under "Other Fuel," is now unlisted and will therefore no longer require an import license from MOT.

ESDM regulation 4/2025 stipulates biofuel use for commercial blending including biodiesel, bioethanol and renewable diesel⁴ for diesel with cetane number 51 and biofuel for aviation fuel. Unlike the replaced regulation, ESDM regulation 4/2025 does not stipulate a roadmap of blending mandates for each biofuel.

Table 4. ESDM Prohibits Biofuel Imports, MOT Simplifies Biofuel Imports

ESDM regulation 4/2025 (Published May 2025)		MOT regulation 16/2025 on Imports Arrangement (Published June 2025)
Article 10	Biofuel companies (BU BBN) are prohibited to import biofuels	• Biofuel products (biodiesel and bioethanol) fall under the Other Fuel Category in MOT regulation 8/2024, which has an import license requirement. Biofuels included in the Commodity Balance phase 2. • MOT 16/2025 takes out Other Fuels in the list, therefore eliminating the import license requirement. Biofuels are not on the list of products that are prohibited to import (Lartas).
Article 17	Fuel companies (BU BBM) may store biofuel before blending with fuel	
Article 18	(1) For blending purposes, fuel companies must prioritize domestic biofuel (2) Use and prioritize domestic biofuel to consider capability of biofuel domestic production and biofuel domestic demand	

On July 22, 2024, the [White House announced a trade deal with Indonesia](#) which, among other benefits, “will eliminate tariff barriers, on a preferential basis, on over 99% of U.S. products exported to Indonesia across all sectors, including for all agricultural products.” The list of tariff lines which would be subject to preferential tariffs has not yet been published and it remains unclear how the above-described regulatory changes relate to the bilateral trade deal.

Biodiesel Blending Mandate Program

Indonesia’s biodiesel mandate program is a nationwide directive to blend fatty acid methyl ester (FAME) called palm oil-based biodiesel with diesel to reduce fuel imports, generate domestic demand for palm oil, and reduce emissions⁵.

The biodiesel program was initially financially unstable. In 2015, the GOI switched from providing subsidies through the national state budget (APBN) to subsidies via the establishment of the Plantation Fund Management Agency, now called BPDP⁶. Through the BPDP, the GOI collects levies on palm oil product exports. As support became more reliable, Indonesia aggressively expanded the blending program from the initial iteration covering only Public Sector Obligation (PSO) industries to a nationwide B20 program in 2018. The GOI further advanced the program to B30 in January 2020. In

⁴ ESDM 4/2025 uses the “bio-hydrocarbon” term to refer to any biofuel without oxygenate content that is processed through certain methods and used in diesel engines.
⁵ It remains unclear if Indonesia can achieve reducing emission outcomes without adequate reporting on land use change and palm oil mill operations, especially concerning the POME disposal.
⁶ Through GR 132/2024, the GOI widens coverage of plantation fund management agency from only-palm oil to adding coconut and cocoa.

February 2023, Indonesia increased its biodiesel blending rate mandate to 35 percent for several regions and expanded the mandate to nationwide coverage by August 2023⁷.

Indonesia officially raised its biodiesel blending mandate from 35 percent (B35) to 40 percent (B40) in January 2025 with a two-month transition period. Prior to implementation, the GOI conducted a B40 road test in 2022 to measure performance for two types of diesel fuel with different rates of bio-components: (1) 40-percent FAME and (2) 30-percent FAME + 10 percent renewable diesel. In June 2024, another B40 test was conducted for off-road sectors such as trains, maritime, mining, stationary power, and agricultural machinery.

Related to the B40 program, Indonesia started to curb exports of waste stream feedstock such as UCO, POME, and High Acid Palm Residue (HAPOR) through [MOT Regulation 2/2025](#), issued in January 2025. According to the MOT, this policy aims to ensure the sufficient availability of raw materials for the domestic cooking oil industry to supply the “people’s cooking oil” program (MinyaKita)⁸ whose prices soared by 20 percent over the last 12 months. In addition, this policy aims to facilitate biodiesel production to implement the new B40 blend mandate program (See [ID2025-0009](#)).

Financial Support for the Biodiesel Mandate Program

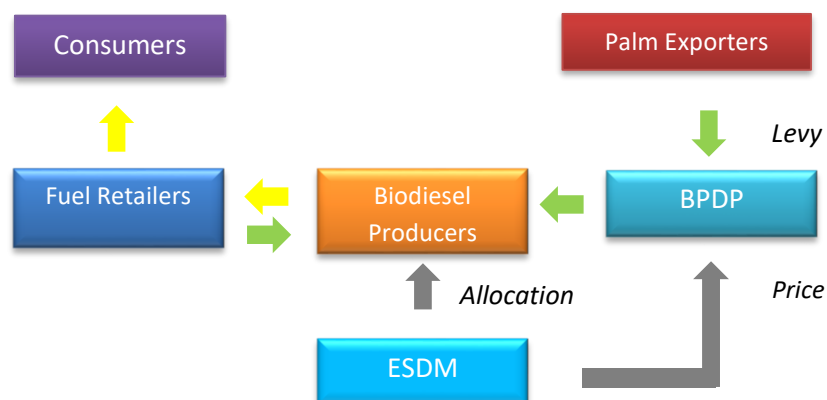
The financial support mechanism for domestic biodiesel consumption was completely overhauled in 2015. The new scheme, with modifications as needed, has proven effective and durable. Managed by the BPDP, funds are collected from a palm-product export levy to offset the price gap between biodiesel and fossil diesel. The agency also uses the funds for research and development, replanting, and palm promotion activities.

The GOI has been setting domestic biodiesel supply allocations on an annual basis since 2019. The ESDM establishes volumes for fuel retailers, both private and state-owned companies, and assigns supply allocations to biodiesel producers, who in turn supply palm oil-based biodiesel for blending. BPDP continues to disburse funds based on the spread between the diesel market index price (HIP Diesel) published by the Directorate General of Oil and Gas (DG Migas) and the biodiesel index market price (HIP Biodiesel) published by the Directorate of New and Renewable Energy (DG EBTKE). Both offices are parts of the ESDM.

⁷ Some sectors are granted relaxation not to follow the mandate program since 2019, specifically military vehicles, some power-plants, and high-altitude mining industry.

⁸ “Minyakita” is cooking oil provided through the Domestic Market Obligation (DMO) scheme that must be distributed in the domestic market at the Government’s set price (HET).

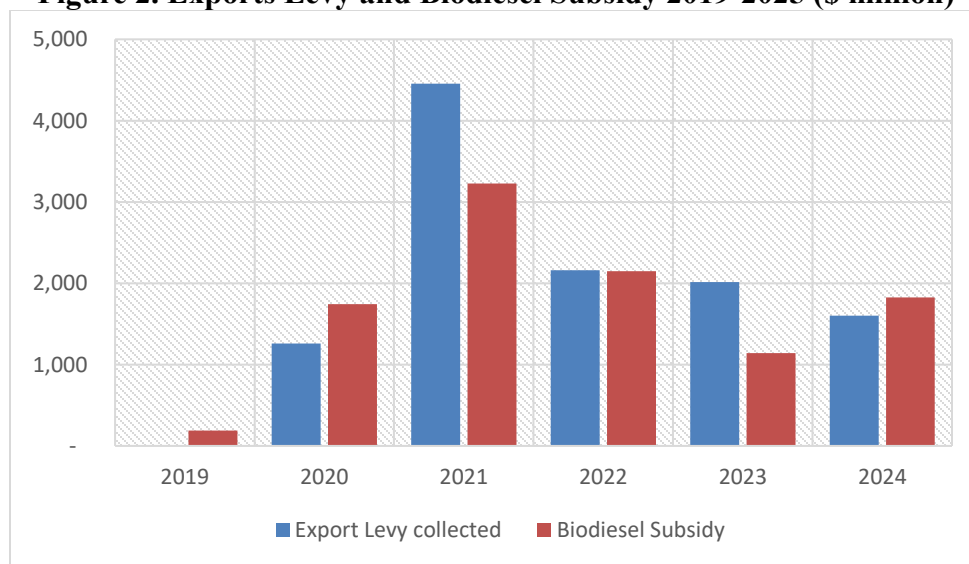
Figure 1. Indonesia Biodiesel Support Mechanism



Source: ESDM

Over the past few years, the GOI has frequently adjusted its export levy scheme to maintain the solvency of its CPO fund amidst palm oil price fluctuations. In December 2018, the export levy formulation changed from a flat-rate structure to a progressive price-based structure in response to declining CPO prices. As the price decline continued into 2019, the GOI halted CPO levy collection altogether, leading to no new revenues being collected by the CPO Fund for the entirety of 2019. In 2022, the GOI began to add new leviable categories of palm products, including palm waste streams. In the last updated levy in May 2025, there are 34 palm products within the leviable list.

Figure 2. Exports Levy and Biodiesel Subsidy 2019-2025 (\$ million)



Source: BPD

A discussion to modify the subsidy mechanism surfaced in 2024⁹, proposing to change the subsidy recipients from biodiesel producers to fuel retailers. The biofuel producer's association claims the current mechanism has damaged their exports markets. However, the proposed change would be

⁹ See the article [here](#)

challenging to implement since it would require many regulations to be revised and more parties to be involved.

Bioethanol Program

On bioethanol fuel-related policy, Indonesia discontinued its bioethanol mandate program in 2010 due to inadequate support programs at the time (See [ID-1823](#)). In 2023, the GOI revived the bioethanol fuel program with the introduction of an E5 blending rate for the premium fuel market limited to Java Island. The E5 blending rate was codified by the issuance of ESDM [Decree Regulation 252/2023](#) on specifications for RON 95 gasoline with 5-percent ethanol blending.

Driven by self-sufficiency goals which support local economic growth, improved balance of payments and a stronger currency, the GOI formed a task force to accelerate sugarcane expansion in the province of Papua. Presidential Decree (PD) 15 issued in April 2024 aims to facilitate land acquisition for new sugarcane plantation area and bioethanol production goals. [PD Regulation 15/2024](#)'s implementing regulation [PR Regulation 40/2023](#) sets forth Indonesia's target of achieving self-sufficiency in sugar production for human consumption by 2028 and producing 1.2 billion liters of sugarcane ethanol by 2030. Based on current International Energy Agency (IEA) gasoline fuel pool projections, Indonesia's gasoline use should reach 40 billion liters by 2030. If the 2030 sugarcane ethanol production target is realized, those 1.2 billion liters of ethanol produced and used, assuming no trade, would be equivalent to an E3 average blend rate at the national level.

In addition to sugarcane, the GOI and [Pertamina](#) are considering alternates feedstock crops such sugar, palm, and sorghum. Both crops are either at small scale or in research and development scale which will take years to level for commercially supplies for fuel ethanol.

In May 2025, the [ESDM](#) planned to implement a mandatory E5 blend for the non-PSO segment specifically for Java Island beginning in 2026. However, no written regulation has been issued as of this report's publication. An [E10 trial](#) for a limited number of vehicles was implemented by Pertamina in November 2024 for a year period. With this initiative, Pertamina aims to learn the effectiveness of an ethanol energy mix in reducing carbon emissions and evaluating the vehicles' performance.

Sustainable Aviation Fuel (SAF)

In 2024, Indonesia launched a new [roadmap](#) that put a target of 1 percent SAF blending by 2027, 2.5 percent by 2030, and rising to 30 percent by 2050. The roadmap explicitly mandates SAF for international flights and has no specifics for domestic flights. It also identifies potential feedstocks for domestic SAF production, specifically from waste products such as UCO and PFAD.

In January 2025, Pertamina announced to use UCO for SAF production in 2025 after receiving ISCC EU - CORSIA certification in December 2024. Previously in 2023, Pertamina and Garuda (the state-owned airline company) conducted a flight test on a Boeing 737-800 NG using palm-based SAF. Another test was done on a military aircraft and a statis test on CFM56-7B jet engines.

Policy Impacting Rate of Growth/Decline in the Fuel Pool

Key policies affecting Indonesia's fuel pool are fuel subsidy and pricing, low-carbon vehicles program, emissions standards, and electric vehicles.

Fuel Subsidy and Pricing

Indonesia provides subsidies for fuels, specifically for gasoline RON90 (Pertalite) and diesel with cetane number 48. The fuel subsidy mechanism sets a fuel retail price nearly fixed for each year, accommodated in the national budget (APBN) that was approved by the House of Representatives. Subsidized fuels have encouraged consumption, such as RON90, which shared the largest gasoline market, between 82-84 percent, since 2022. Like the gasoline market, subsidized diesel has a share between 87 to 91 percent of the diesel market.

Low Carbon Vehicles and Tax Incentives

The GOI provides lower sales taxes on flex-fuel vehicles (FFVs), electric cars, and hybrids to encourage the adoption of low carbon emission vehicles. Government Regulation 79/2019, which was amended by [GR Regulation 74/2021](#), fixed lower sales taxes based on carbon emissions, engine capacity, and alternative technology. The tax incentive for flex-fuel vehicles was largely unused again in 2023, due to the limited availability of bioethanol gas stations and more lucrative tax cuts for electric vehicles. In August 2023, a local auto manufacturer exhibited a passenger vehicle with a flex-fuel engine capable of running on 100 percent bioethanol.¹⁰ However, the market penetration of flex-fuel vehicles is currently still at zero.

Emission Standards

Indonesia is officially adopting Euro 4 standards¹¹, but still far from the full implementation. There are fuels available that meet the Euro 4 standards which require sulfur content to a maximum of 50 ppm. However, most of the fuel sold does not meet the Euro 4 requirements.

Electric Vehicle (EV) Adoption

The GOI has promoted the adoption of EVs since 2023 by providing tax incentives and subsidies, making EV cars and two-wheeler electric vehicles more affordable. Indonesia is set to deploy 2 million electric cars and 12 million two-wheelers by 2030—equal to 8-9 percent of total vehicle population, however the adoption of EVs remains far from the target. In 2024, EV cars sales contribute approximately 6 percent of total car sales at 860,000 units.

C. Environmental Sustainability and Certification

Currently, there is no mandatory certification that sets emission standards for Indonesia's mandatory biofuel blending program. However, a requirement was set in 2021 for publicly listed companies to

¹⁰ The flex-fuel passenger SUV is showcased in the Indonesia largest auto show, August 2023. Read more [here](#).

¹¹ Emission standards is adopted through [KLHK 20/2017](#)

disclose the emissions they generate, which could pave the way for sustainability certification for biofuel producers participating in the biofuel blending mandate program.

Ethanol producers, specifically publicly listed companies, began publishing sustainability reports as mandated by the Indonesia SEC (OJK)¹². The required report highlights the sustainability aspects and programs each ethanol producer has elected to do in the ethanol production process. Some notable programs reported in the sustainability report include replacing coal-based boilers with low-emission boilers and the application of zero waste and zero discharge principles. The OJK rule implies that publicly listed ethanol producers must disclose the number of emissions generated and emission reduction activities.

For palm biodiesel, the GOI expanded its mandatory certification (ISPO) from plantations to the palm-based downstream sector, including the palm biodiesel industry. [Presidential Regulation \(PR\) Regulation 16/2025](#) obligates the biodiesel industry to be ISPO-certified before March 2027.

The ISPO standard covers a range of criteria, including GHG emissions, land use, biodiversity, and labor. PR 16/2025 adds a traceability principle in the certification for biodiesel industry. The ISPO certification process is carried out by a certifying agent that must be recognized by the National Accreditation Committee (KAN). Since 2021, at least 15 certifying companies have already been recognized by KAN. As of May 2025, 6.5 million hectares of palm plantation were ISPO-certified, about 39 percent of the total planted area.

In addition to the planned introduction of mandatory ISPO requirements, there are several voluntary sustainability certification schemes in place to support palm oil product exports, such as the RSPO (Roundtable on Sustainable Palm Oil). Voluntary certifications are also available for POME processing facilities, both for export and methane capture facilities in Indonesia. Third parties, such as ISCC (International Sustainability and Carbon Certification) carry out the certification process for selected facilities and operators in accordance with selected standards.

EU biofuel-related measures

The European Union (EU)'s focus on sustainability criteria for biofuels weighs heavily on the Indonesian biofuels sector and is a constant source of strife among GOI officials and their EU counterparts. The EU outlines its sustainability criteria in its Renewable Energy Directive (RED) and RED II which adopted in 2018 and EU member states transposed its provisions into national law in 2021. A revised version of RED II that aligned with EU's Green Deal goals entered into force in November 2023 (see [E42024-0024](#)).

In March 2019, the EU Commission adopted the delegated act which set criteria both for (1) determining the high ILUC (indirect land-use change) risk feedstock for which there is a significant expansion of the production area into land containing high carbon stocks and (2) certifying low ILUC-risk biofuels. The report, published along with the delegated act, concluded that palm oil is a high ILUC-risk feedstock and therefore EU member state consumption of imported or domestically produced biodiesel and renewable diesel made with palm oil, eligible for counting towards mandate fulfillment,

¹² See [OJK Regulation 57/2017](#)

must be capped at 2019 levels then phased out by 2030. No SAF made from food or feed-based feedstock is eligible to meet any member state or EU-wide SAF mandate. Several EU member states have already eliminated palm oil use in biodiesel and HDRD, including France, Austria, Belgium, and Germany. As a result, the phase out of EU use of palm oil-based biodiesel or HDRD, whether imported or domestically produced, is well ahead of schedule and already nearly complete while imports of palm oil biodiesel from SE Asia have declined. However, the report also notes that palm oil-based biodiesel and HDRD production, under certain conditions, may be considered in the low ILUC risk category. This phaseout pertains only to palm oil-based biofuels, not POME and PFAD biofuels and not palm oil products for other uses such as food use.

The GOI continues to challenge this policy, initially requesting a WTO consultation in December 2019. A dispute panel was established in July 2020 at the request of Indonesia. In January 2025, the panel circulated key findings that confirm discriminatory practices in the EU's palm oil policies and palm-based biofuel and therefore the EU must adjust its regulations to ensure compliance (see summary [here](#)). The EU deforestation regulation (EUDR) that initially set for full implementation by end of 2024, is delayed until December 30, 2025 for large companies and June 30, 2026 for small enterprises. The EUDR is expected to affect several palm oil and derivative products exports, including palm oil waste used for biofuel feedstocks such PFAD and POME. Companies exporting targeted products to the EU market must collect information ensuring that the product was not produced on land deforested after December 31, 2020. The EUDR also requires importers to carry out mandatory due diligence and mitigation measures such as using satellite monitoring tools to verify information.

In July 2025, Indonesia and the European Union (EU) have reached a political agreement on a Comprehensive Economic Partnership Agreement (IEU-CEPA). This agreement is expected to remove tariff barriers, including palm-based products, but it remains unclear how non-tariff barriers will be addressed. Prior reporting indicates that Indonesia and the EU are committed to cooperating in the field of vegetable oils and fats.

Studies on Life Cycle Assessment (LCA) approach for Indonesia Biodiesel Production

Studies on LCA biodiesel in Indonesia have been carried out with varying results. From land preparation to biodiesel combustion, several LCA studies identified stages that critically contribute to the value of Global Warming Potential (GWP). The studies found that minimizing extreme negative environmental impacts of biodiesel production is best achieved by selecting non-burning techniques for land clearing and choosing non-forest and non-peat land. Another study highlighted additional key factors as farm fertilizer and soil management techniques as well as disposal methods of palm oil mill POME and the presence of biomethane capture.¹³ Another study pointed out that total GWP for a metric ton of biodiesel production is 2,762 kg CO₂e, 90 percent of which is caused by the planting stage, 1.1 percent from the CPO production stage, and 8.6 percent from biodiesel production stage¹⁴.

D. Trade Policy

As noted above, in May 2025, the GOI published ESDM no 4/2025, which prohibits biofuel companies from importing biofuels. However, the regulation also stipulates that for blending purposes, fuel

¹³ See [K Siregar et al, 2021](#)

¹⁴ See [Paminto AK et al, 2022](#)

companies must prioritize local biofuels. This has caused confusion for the industry, since the regulation implies that no parties can import fuel ethanol, but also states that fuel ethanol can be only imported by biofuel companies with ESDM permits to produce and trade biofuels.

Conversely, in June 2025, the GOI announced a deregulation package which removed import permit requirements for a number of products, including biofuels that fall under the category “Other Fuel.” Prior to September 2025, the Other Fuel category will continue to be regulated under MOT Regulation 8/2024 and the importation process will be through the Commodity Balance process. Under the Commodity Balance mechanism, importers must submit a needs plan, which ESDM will verify and finalize as the technical ministry. Afterwards, an interministerial meeting will determine the approved volume of biofuels to be imported. Importers then apply for import licenses under the MOT system.

However, the deregulation outlined in MOT regulation 16/2025 excludes biofuel products in the limited and prohibited list (LARTAS), which implies that no import license is required for importation. Currently, importers are seeking clarification on the new regulations, since the deregulation goals are significantly in contrast with ESDM regulation 4/2025 which prohibits biofuel companies from importing biofuels.

Table 5. MFN Imports Duties on Fuel Ethanol, Biodiesel, Gasoline and Fuel Additives

HS code	Description	Duty Rate (percent)
2207.10 2207.20	Undenatured ethanol Denatured ethanol	30
2710.12.21 2710.12.24 2710.12.27	Gasoline, RON 97 and above, unblended Gasoline, RON 90 and above, below RON 97, unblended Gasoline, below RON 90, unblended	0
2710.12.22 2710.12.25 2710.12.28	Gasoline, RON 97 and above, pre-blended with ethanol Gasoline, RON 90 and above, below RON 97, pre-blended with ethanol Gasoline, below RON 90, pre-blended with ethanol	0
2710.19.79	Hydrotreated Vegetable Oil/HDRD	0
2710.20	Petroleum oils containing biodiesel up to 30 percent by volume	0
2902.20 2902.30 2902.44	Benzene Toluene Xylene	0
2909.19	Methyl Ter-Butyl Ether (MTBE)	5
3826.001 3826.002 3826.003	Biodiesel, with coconut methyl ester content more than 70 percent Biodiesel, with methyl ester content more than 96.5 percent Biodiesel, other feedstock	5

Source: [INSW](#), Ministry of Finance

Indonesia is bound by several trade agreements that have enabled lower duties on ethanol imports from certain countries. The Preferential Trade Agreement (PTA) between Indonesia and Pakistan enables

(medical grade and non-fuel industrial applications) ethanol imports from Pakistan to Indonesia at zero percent beginning in 2019.¹⁵

In May 2025, Indonesia raised exports levies for most palm oil products, from 7.5 percent to 10 percent for crude products and up to 9.5 percent for refined products. The increases affect 34 palm products, including six additional products that were not previously subject to levies, such glycerin, soap stocks, and refined palm oil mill effluent POME. The levy increases are meant to sustain the new B40 blend mandate program.

Table 6. Export Levy on Biodiesel and other Palm Products

HS code	Description	Export Levy
1511.10.00 1511.90.41 1511.90.42 1513.21.10 1513.29.11 2306.60.90 2306.90.90	Crude Palm Oil (CPO) Crude Palm Stearin Crude Palm Olein Crude Palm Kernel Oil Crude Palm Kernel Stearin Palm Oil Mill Effluent (POME)	10%
3823.19.20 3823.19.30 1518.00	Palm Fatty Acid Distillate (PFAD) Palm Kernel Fatty Acid Distillate (PKFAD) Used Cooking Oil (UCO) ¹⁶	9.5%
1511.90.20 1520.00.10	Refined Bleached Deodorized Palm Oil (RBDPO) Crude glycerin	7.5%
3826	Palm-based Biodiesel (with Methyl Ester more than 96.5%)	4.75%

Source: [MOF Regulation 30/2025](#)

Section III. Ethanol

Consumption

Indonesia fuel ethanol consumption is projected to reach 2 million liters for 2025 on limited sales of E5 in Java. State-owned fuel retailer Pertamina increased the number of gas stations selling E5 gasoline from 15 in 2023 to 119 locations as of June 2025. There are more than 6,000 gas stations across the country, with more than 40 percent operating on Java Island.

Pertamina E5 is non-PSO fuel at the quality of RON 95. Combined with RON 98 gasoline, sales of high RON gasoline made up about 1 percent of gasoline sales in 2024. The largest gasoline use is subsidized, government-fixed price gasoline of RON 90 called Pertalite. In the last three years, more than 80 percent of Indonesia’s gasoline sales were contributed from RON 90 gasoline.

The introduction of E5 at RON 95 gasoline poses challenges due to affordability and regulation complexity. Since the introduction, the E5 prices were moved between 5 to 12 percent higher than RON 92 gasoline and 27 to 60 percent higher than subsidized gasoline of RON 90. Wide price disparity with

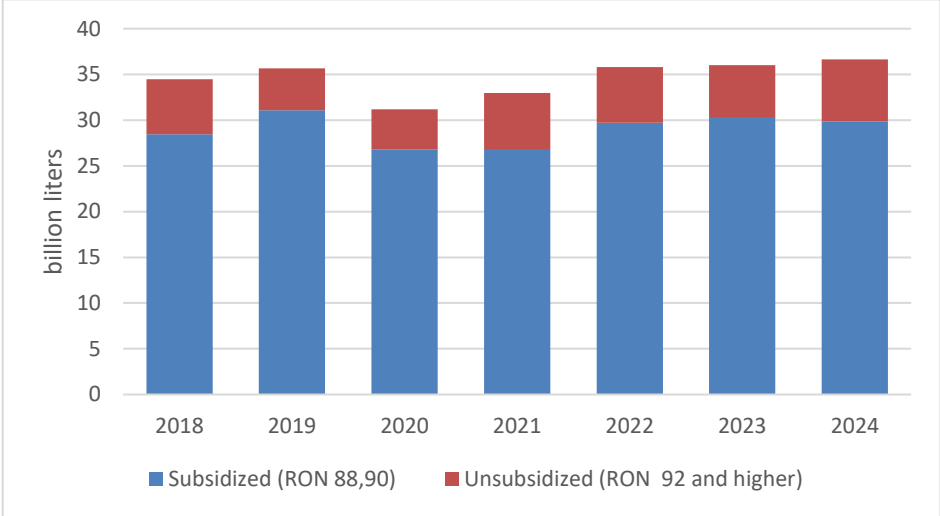
¹⁵ See [ID2022-0017](#) for details trade agreements providing lower ethanol import duties.
¹⁶ MOF details HS Code for UCO: 1518.00.14, 1518.00.19, 1518.00.32, 1518.00.38, 1518.00.60 and 1518.00.90

other gasoline products hindered consumers’ preference for E5 buying, despite E5 price in first semester of 2025 were 3 percent lower than in 2024. On smoothed global crude oil prices, non-subsidized gasoline prices showed a downtrend between 2 and 5 percent in the first semester of 2025 to average 2024.

Current regulations on ethanol sales put fuel-grade ethanol in the same category as industrial grade ethanol, requiring fuel refiners to pay an excise of IDR 20,000 for each liter of ethanol purchased from producers. Despite the available refund mechanisms, fuel refiners are exposed to cash management risks.

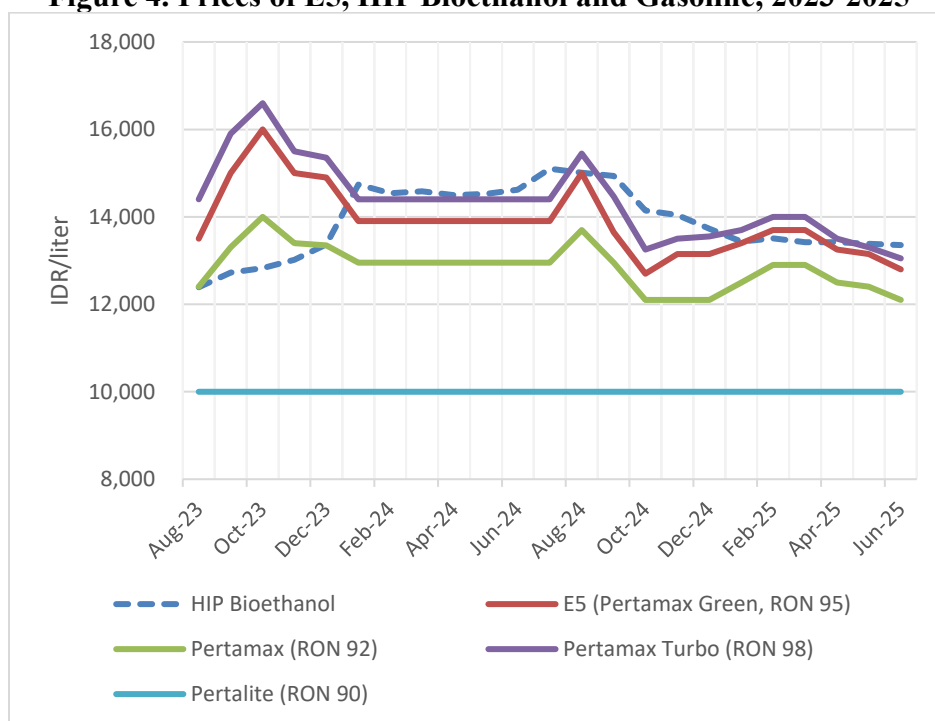
Post estimates total ethanol consumption to slightly increase one million liters to 166 million liters in 2025 on continued demand for industrial ethanol for pharmaceuticals, cosmetics, and chemical solvents. The prospect of improved demand likely depends on competitive ethanol prices from competitive feedstocks, a regulatory framework for lower or no excise duty, and improved performance of industrial sectors.

Figure 3. Subsidized Fuel Prevails in Indonesia Gasoline Market



Source: ESDM

Figure 4. Prices of E5, HIP Bioethanol and Gasoline, 2023-2025



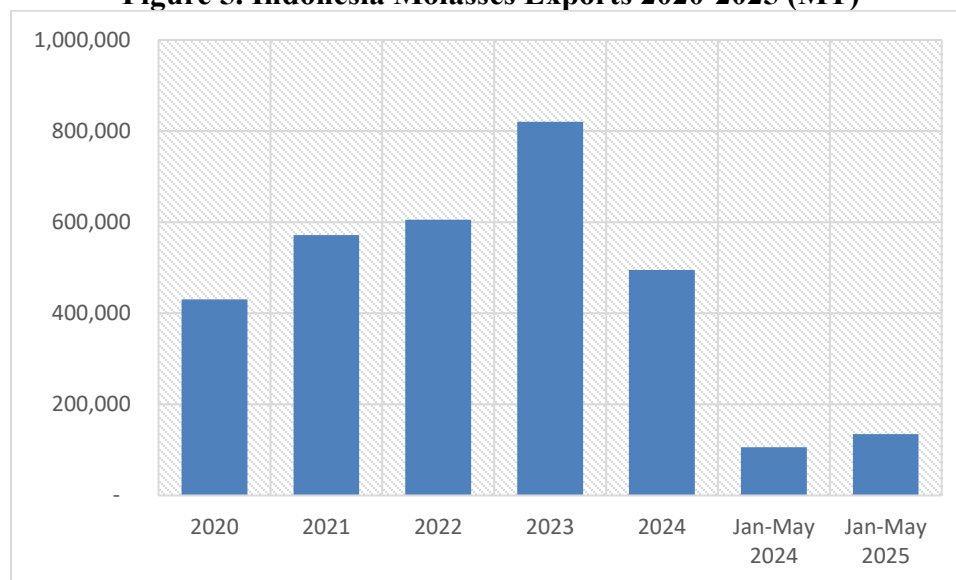
Source: ESDM, Pertamina

Production

Indonesia fuel ethanol production is forecast at 3 million liters in 2025 due to higher E5 gasoline demand. Currently, fuel-ethanol production depends on molasses from a state-owned sugarcane company in East Java.

Non-fuel industrial ethanol production is projected to rise modestly by 5 percent to 215 million liters in 2025, driven by anticipated increases in export demand and stable domestic consumption. Indonesia's sugar output for 2025 is estimated at 2.6 MMT, generating approximately 1.8 MMT of molasses. Nevertheless, local ethanol producers continue to face challenges due to competition for molasses, which remains a valuable feedstock also utilized in food processing, monosodium glutamate production, and exports.

Figure 5. Indonesia Molasses Exports 2020-2025 (MT)



Source: Trade Data Monitor, LLC

Trade

Indonesia's ethanol exports are forecast at 60 million liters for 2025, up from 50 million liters in 2024 on higher exportable volume and continued demand from key markets. Indonesia exports mostly industrial-grade ethanol, with the Philippines and Thailand as key destinations. Indonesia's ethanol shipments to the Philippines decreased since 2021 on competition from other origins, mainly Brazil. From January to May 2025, Indonesia shipped 25 million liters of ethanol, 37 percent higher than the corresponding period last year. In the last five years, more than 90 percent of ethanol was shipped to the Philippines.

Ethanol imports are limited, expected to reach 10 million liters in 2025. Approximately 93 percent of ethanol imports since 2020 were of Pakistani origin and non-fuel grade quality, benefiting from PTA zero import duty.

Table 7. Ethanol Supplies, Trade, and Use in Indonesia

Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters)										
Calendar Year	2016	2017	2018	2019r	2020r	2021r	2022r	2023r	2024r	2025f
Beginning Stocks	16	15	14	14	6	6	11	8	11	14
Fuel Begin Stocks	0	0	0	0	0	0	0	0	1	1
Production	205	195	200	200	193	200	205	221	205	215
Fuel Production	0	0	0	0	1	0	0	1	2	3
Imports	2	5	96	1	29	54	32	6	13	10
Fuel Imports	0	0	0	0	0	0	0	0	0	0
Exports	71	64	158	70	47	82	77	60	50	60
Fuel Exports	0	0	0	0	1	0	0	0	0	0
Consumption	137	137	138	139	175	167	163	164	165	166
Fuel Consumption	0	0	0	0	0	0	0	0	2	3
Ending Stocks	15	14	14	6	6	11	8	11	14	13
Fuel Ending Stocks	0	0	0	0	0	0	0	1	1	1
Refineries Producing Fuel Ethanol (Million Liters)										
Number of Refineries	3	3	3	3	3	3	3	3	3	3
Nameplate Capacity	100	100	100	100	100	100	100	100	100	100
Capacity Use (%)	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.0%	2.0%	3.0%
Feedstock Use for Fuel Ethanol (1,000 MT)										
Molasses	0	0	0	0	4	0	0	4	8	12
Market Penetration (Million Liters)										
Fuel Ethanol Use	0	0	0	0	0	0	0	0	2	3
Gasoline Pool 1/	31,986	33,548	34,490	35,677	31,194	32,953	35,796	36,024	36,731	37,466
Blend Rate (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: 1/ Covers gasoline and all additives including any bio-components (biofuels) when used like ethanol.

Source: ESDM, Statistics Indonesia via Trade Data Monitor, LLC, Post estimate

Section IV. Biodiesel /Renewable Diesel

Consumption

Indonesian biodiesel consumption is driven by the blending mandate program and supported by funds from the levy on palm oil exports. Diesel truck engine design in vehicles delivered to the market are periodically updated to reduce engine damage risk due to higher blending. Post expects biodiesel consumption to reach 14.5 billion liters in 2025, a 10 percent increase from 2024 on the implementation of B40. As of June 2025, industry data shows biodiesel distribution for mandate program reached 6.8 billion liters, on track with 50.3 percent of total full year allocation.

Post expects 2025 biodiesel consumption to reflect the previous year's performance, reaching around 92 percent from the allocation. On an annual basis, the GOI assigns biodiesel producers to supply to the mandatory program and sets the allocation (volume) of biodiesel each assigned producer is to provide. A slight decrease from the average realization is likely due to unsubsidized biodiesel for the non-PSO diesel market.

Post predicts that HDRD consumption remains virtually zero in 2025, as the blending mandate program only utilizes FAME as the bio-component for blending with diesel. The inclusion of HDRD into the upcoming B50 program is an option, assuming the pricing feasibility concern is resolved.

The biodiesel mandate program relies on subsidies funded by Indonesia's palm oil export levy to cover the price spread between biodiesel and fossil diesel. In 2024, the subsidy reached \$1.8 billion, while funds collected from the export levy were lower at \$1.6 billion. This subsidy amount was 60 percent higher than provided in 2023 due to wider spread between palm oil diesel and fossil diesel prices. The remaining balance from 2023 export levy fund patched the deficit of biodiesel program in 2024.

Production

Post forecasts 2025 palm oil-based biodiesel production at 14.5 billion liters, up 1.2 billion liters from 2024 on the almost full year's implementation (March – December) of B40 coupled with some fuel pool growth. The GOI set biodiesel allocations at 15.6 billion liters for the 2025 biodiesel mandate program. Biodiesel production nameplate capacity is projected to be slightly increased year over year, with the capacity use rate remaining high. In 2025, biodiesel production capacity will reach 19.6 billion liters; an additional capacity of 4.0 billion liters is required to meet B50.

Indonesia relies on palm oil to produce biodiesel, despite the government officially mentioning feedstocks from waste products. Waste stream POME from palm oil mills and co-product PFAD from palm oil refineries as well as UCO, a waste product from food processing industries, restaurants and home cooking, were mainly exported before 2025. The GOI began to curb exports of waste stream feedstocks in January 2025.

Trade

Indonesia's biodiesel exports are expected to be virtually zero in 2025 as the government works to secure the B40 program and limited production growth. In the last decade, Indonesia exported palm biodiesel to several key markets such China, the EU and the United States, with smaller volumes shipped to Peru, the Philippines, and South Korea.

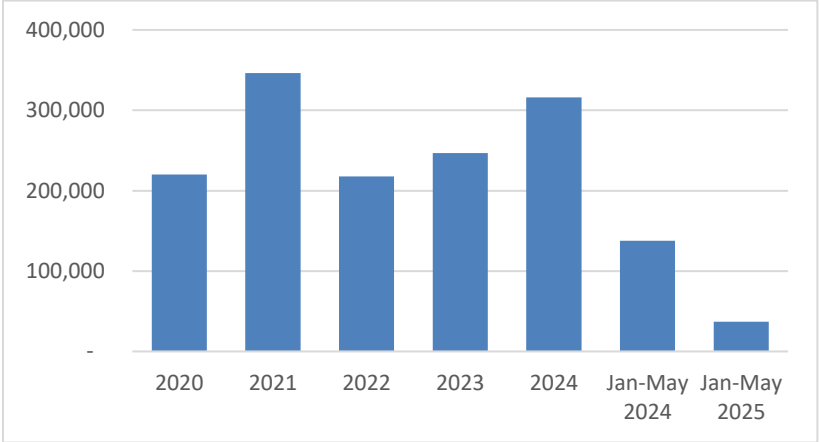
Exports surge during periods when demand from China for discretionary blending emerges and collapse as that demand disappears. This demand is driven by the spread between the price of palm oil biodiesel and the price of diesel. Exports tend to decrease in years when such discretionary demand disappears and after the enactment of high duties in key export markets.

Indonesian palm biodiesel exports to the United States remains limited partially due to countervailing and anti-dumping duties. The U.S. market remains constrained as Indonesia palm biodiesel does not meet the 20-percent minimum GHG savings threshold and thus obligated parties cannot use the product to meet Renewable Fuel Standard (RFS) volumetric obligations. It is therefore also not eligible for Renewable Identification Numbers (RINs) which have market value. The EU has also imposed 8-18 percent countervailing duties on Indonesia biodiesel since December 2019 and has shifted away from the use of palm oil biodiesel.

Select Feedstocks for Biofuel Production¹⁷

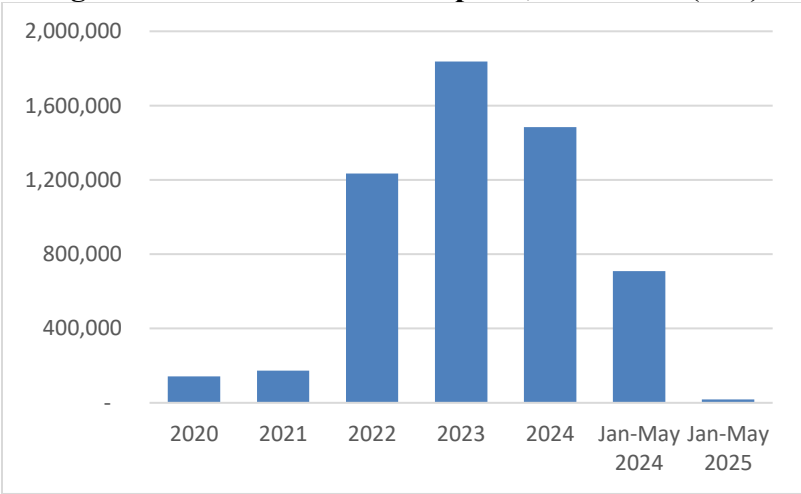
A study in 2022 estimated potential collectable UCO in Indonesia at 715,000 MT per year, based on sources from urban restaurants, urban households, and food processing facilities. This estimate excludes illicit “gutter oil” from sewers, drains, and grease traps as that data is not available. Indonesia UCO exports showed growth up until 2021, peaking that year before being levied at \$35 per MT in 2022. Indonesia main destination for POME exports in 2024 were China (40 percent), Italy (20 percent) and Malaysia (15 percent). Indonesia key export markets in 2024 for UCO were the United States (36 percent), Malaysia (35 percent), Singapore (13 percent) and Spain (10 percent).

Figure 6. Indonesia UCO Exports, 2020-2025 (MT)



Source: Statistics Indonesia via Trade Data Monitor (TDM), LLC

Figure 7. Indonesia POME Exports, 2020-2025 (MT)



Source: Statistics Indonesia via Trade Data Monitor (TDM), LLC

¹⁷ HS Code for UCO: 1518, POME: 230690 and 382319 for PFAD.

In early 2025, Indonesia began to curb export on UCO and palm residue, including POME, in order to ensure domestic supplies of cooking oil industry and biodiesel mandate program (see [ID2025-0009](#)). In the May-2025 export palm levy revisions, the GOI added products related to palm waste (such refined POME) and byproducts (glycerol) into the leviable list.

Table 8. Biodiesel/Renewable Supplies, Trade, and Use in Indonesia

Biodiesel (Million Liters)										
Calendar Year	2016	2017	2018	2019	2020	2021r	2022r	2023r	2024r	2025f
Beginning Stocks	94	110	151	257	293	328	390	333	316	375
Production	3,500	2,800	5,600	7,700	8,500	9,550	10,900	12,600	13,300	14,500
Imports	0	0	28	0	0	1	0	0	0	0
Exports	476	187	1,772	1,271	39	193	539	370	83	0
Consumption	3,008	2,572	3,750	6,393	8,426	9,296	10,418	12,247	13,158	14,500
Ending Stocks	110	151	257	293	328	390	333	316	375	375
Production Capacity (Million Liters)										
Number of Biorefineries	30	32	31	31	31	32	33	34	34	35
Nameplate Capacity	10,898	11,547	11,357	11,357	11,357	14,415	16,656	18,548	18,700	19,600
Capacity Use (%)	32.1%	24.2%	49.3%	67.8%	74.8%	66.3%	65.4%	67.9%	71.1%	74.0%
Feedstock Use (1,000 MT)										
Crude Palm Oil	3,220	2,576	5,152	7,084	7,820	8,786	10,028	11,592	12,236	13,339
Used Cooking Oil (UCO)	na	na	na	na	na	na	na	na	na	na
Palm Oil Mill Effluent (POME)	na	na	na	na	na	na	na	na	na	na
Market Penetration (Million Liters)										
Biodiesel, On-road use	2,263	1,963	2,982	5,238	7,341	7,945	9,076	10,703	11,804	13,119
Diesel Pool, On-road use ^{1/}	21,567	23,877	24,984	30,610	28,859	31,653	35,364	36,975	36,618	38,449
Blend Rate (%)	10.5%	8.2%	11.9%	17.1%	25.4%	25.1%	25.7%	28.9%	32.2%	34.1%
Diesel Pool, Total ^{1/}	30,039	31,441	33,268	33,169	31,230	34,728	38,684	39,532	41,162	41,700

Note: 1/ Covers diesel and all biocomponents (biodiesel) and renewable diesel when used.

Source: ESDM, Statistics Indonesia via Trade Data Monitor, LLC, Post estimate

Section V. Advanced Fuels

GOI agencies and state-owned companies are collaborating to conduct research and various tests for developing advanced biofuels. A domestic market for HDRD and SAF cannot develop without mandates, tax policy, or other financial supports to incentivize fuel switching away from lower-cost substitutes like biodiesel, fossil diesel, and jet fuel. No such mandates or other support have yet to occur.

Sustainable Aviation Fuel (SAF)

Pertamina produced SAF utilizing co-processing technology and uses feedstock of Refined Bleached Deodorized Palm Oil (RBDPO) at Cilacap Refinery facility in Central Java. Pertamina plans to step forward utilizing UCO and production trial will begin in 2025.

Table 9. Indonesia SAF and HDRD Production Capacity

Producers	Location	Production Capacity	Products	Status
Pertamina	Cilacap, Central Java	477 kilo liters per day	HDRD, SAF	Trial Production, Phase 2 to be onstream by 2026
Pertamina	Plaju, South Sumatera	3180 kilo liters per day	HDRD	Development, to be completed in 2027
Pertamina	Dumai, Riau	159 kilo liters per day	HDRD	Trial

Renewable Gasoline

The ESDM plans to expand its research to include palm-based renewable gasoline at a pilot plant in South Sumatera with a production capacity of 238.5 kiloliters per day (87,053 liters/year). This project converts palm oil to renewable gasoline using a cracking process utilizing a zeolite-based catalyst produced by the Bandung Institute of Technology (ITB).

Section VI. Notes on Statistical Data

Biodiesel

The biodiesel consumption figure is sourced from a biofuel association ([Aprobi](#)) using a “distribution number” figure. Biodiesel production is based on Post estimates. The “residual” is based on other supply/demand elements) based on Pertamina’s fuel stock average of 19 days, trade, and consumption. Nameplate capacity figures are gathered from ESDM/Aprobi.

Feedstock Conversion Rates

Crude Palm Oil: 1 MT of CPO = 1,087 liters of biodiesel

Used Cooking Oil: 1 MT of UCO = 1,043 liters of biodiesel

Palm Oil Mill Effluent: 1 MT of POME = 1,043 liters of biodiesel

Ethanol

Historical ethanol production and consumption are based on Post calculations. Nameplate capacity: association of ethanol producers’ data and ESDM.

Feedstock Conversion Rates

Molasses: 1 MT of molasses = 250 liters of ethanol

Gasoline and Diesel

Gasoline and diesel sales figures, based on the ESDM publication issued in 2025: [Handbook of Energy & Economic Statistics of Indonesia](#). Historical figures from previous publications have been updated with the latest figures.

Trade

All trade data sourced from Statistics Indonesia via Trade Data Monitor, LLC with the following HS codes: 3826 (Biodiesel/FAME) and 271020, 220720 (fuel ethanol), 1518 (UCO), 230690 (POME) and 382319 for PFAD.

All product trade under HS 3826 is assumed to be pure B100 biodiesel; All products under HS 271020 as petroleum oil, containing up to 30 percent, is assumed to contain on average 5 percent biodiesel by volume, converted and reported as B100 equivalent.

Attachments:

No Attachments