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Report Highlights:

Indonesia is the world's largest producer and consumer of biodiesel and continues to expand its nationwide biodiesel program at a remarkable pace, successfully launching B30 in January 2020. The diesel-biodiesel pool is negatively impacted by Covid-19, but higher blending provides an offset leading to increased domestic use of biodiesel in 2020. The global decline in diesel prices has placed pressure on the CPO Fund subsidy program and eliminated China's discretionary demand for Indonesia's biodiesel. Biodiesel exports are nearly eliminated in 2020. There remains no fuel ethanol program, but a prohibition on ethanol in finished gasoline imports has been removed.

Section I. Executive Summary

Indonesia continues expanding its nationwide biodiesel mandate, boosting its blend rate over the past two years at a pace far exceeding the achievement of any other country in history. If renewable diesel (HDRD), also used in the United States, is added to include all liquid renewables in the diesel pool, Indonesia is now on par with the United States as the world's largest producer, but trails U.S. consumption to some degree.

A larger, mid-size diesel market, Indonesia pushed its average on-road transport blend rate to 20 percent in 2019 and is expected to achieve 30 percent in 2020, a blend rate nearly three times higher than the next highest rate for any country. Given the projected success of its domestic program and despite a sharp decline in exports, biodiesel production and crude palm oil (CPO) use in biodiesel are forecast to reach a record 7.8 billion liters and 7.2 mmt in 2020, respectively.

The program has faced growing subsidy costs as the price spread between biodiesel and diesel began increasing in December 2019 and dramatically worsened in March and April following steep declines in world oil prices triggered by a supply shock from the Saudi-Russia oil price war plus a demand shock related to stay-at-home orders and ensuing reduced economic activity tied to the Covid-19 pandemic.

In a firm demonstration of its commitment to maintaining the program the Government of Indonesia (GOI) increased the palm oil export levy (the primary funding source of the subsidy) by $5 per ton and reinstated a flat rate structure independent of CPO price fluctuations. Additionally, the GOI revised the biodiesel market index price (HIP) formula by lowering the conversion factor from $100 to $80 per ton, thus decreasing payouts to producers, and through the national state budget (APBN) allocated IDR 2.78 trillion ($195 million) to the CPO fund as part of the national economic recovery package to mitigate the impact of Covid-19.

In April 2020, the GOI began to respond to the Covid-19 outbreak by enacting large-scale social restrictions (PSBB), limiting people's travel in most major cities. As a result, fuel consumption has declined, including (temporarily) biodiesel. Biodiesel consumption is expected to reach a record 7.7 billion liters in 2020, an increase from 2019 but lower than B30 allocation volumes set by the Ministry of Energy and Mineral Resource (MEMR) prior to the pandemic when 2020 fuel consumption volumes were projected higher.

Biodiesel exports are all but disappearing in 2020 as the sharp drop in diesel prices has ballooned the palm oil – gasoil (PO-GO) price spread into positive territory since late 2019, curtailing China's discretionary demand for palm-oil biodiesel. Countervailing duties ranging from 8 to 18 percent imposed by the EU on Indonesian biodiesel since December 2019 discourage sales to that market.

Alongside biodiesel, Indonesia has maintained "on the books" its ethanol mandate for gasoline; however, lack of financial support with no enforcement, costly local feedstock and limited domestic production capacity have left the program inactive. In March 2020, state-owned energy giant Pertamina

removed a prohibition on ethanol as a component in gasoline import tenders. The moved opens the door for RON 88 and RON 92 gasoline pre-blended with ethanol to enter the market duty free.

Section II. Policy and Program

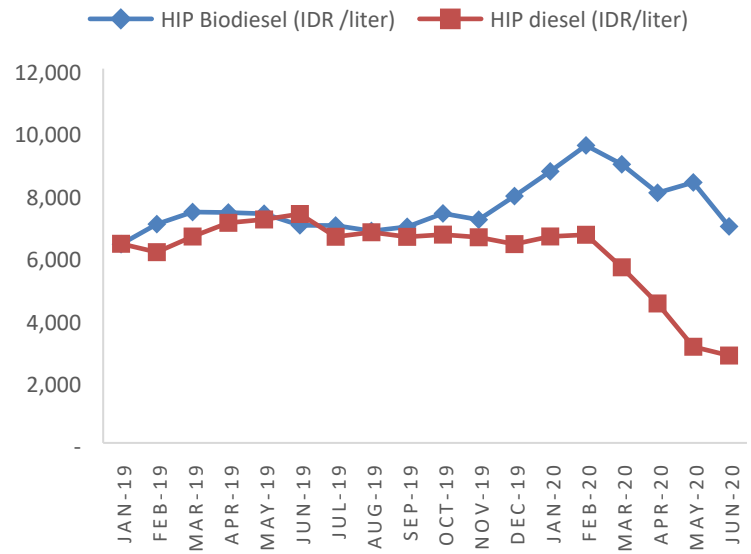
Indonesia began adopting biofuels policy at national level in 2006 by issuing Government Regulation 1 concerning the procurement and usage of biofuels. In support of Regulation 1, Presidential decree 10/2006 established a National Biofuels Development Team, responsible for supervising the implementation of biofuel programs and creating a blueprint for biofuels development. According to the blueprint, biofuels development aims to (1) alleviate poverty and unemployment, (2) drive economic activities through biofuel procurement and (3) reduce domestic fossil fuel consumption. This regulation was followed by Indonesia's House of Representative (DPR) also passing the Energy Law (UU 30/2007) to strengthen regulations prioritizing the use of renewable energy. Read earlier report here.

The National Energy Policy (KEN) established through government regulation 79/2014 is the most important basis in the biofuels program. KEN targets 23 percent renewable energy use economywide by 2025 and 31 percent in 2050. The contribution of biofuels towards meeting these goals roughly translates to 13.9 billion liters and 52.3 billion liters of biofuel use, respectively.

The biodiesel program was unstable until a more reliable support mechanism was established following Indonesia's switch from providing subsidies through the national state budget (APBN) to subsidies via the CPO fund, which was established in 2015 to collect a levy on palm oil product exports (see report on CPO fund scheme here). Since 2015, Indonesia has aggressively expanded the blending program from its initial reach through Public Sector Obligation (PSO) industries to nationwide B20 in 2018 and as of January 2020, nationwide B30.

The rapid expansion occurred as the country faced an increasing current account deficit, exacerbated by the high cost of petroleum imports. The recent sharp decline in global gasoline and diesel prices has offered Indonesia some respite from the pressures of importing about half of all gasoline and about 20 percent of diesel fuel consumption. However, the increasing price spread between diesel and biodiesel (see Figure 1) has rapidly drained reserves from the CPO fund at the same time as additional resources are needed to support the B30 expansion. The spread reached IDR 4,140 per liter in June 2020; up from IDR 1,540 per liter in December 2019.

Figure 1. Biodiesel and Diesel Market Index Price (IDR/liter)



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Source: MEMR

In June 2020, the Jokowi administration demonstrated Indonesia's resolve to maintain its nationwide B30 program by increasing the palm oil export levy by $5 per ton and by reinstating a flat collection structure that would no longer consider the market price for CPO when applying the levy. Additionally, the market index price (HIP) formula was also revised to lower the conversion factor from $100 to $80 per ton (MEMR Regulation 105/2020), effectively reducing the subsidy paid to biodiesel producers. In a final show of support, the GOI allocated an additional subsidy of IDR 2.78 trillion ($195 million) from the state budget (APBN) as part of a national economic recovery package to mitigate the impact of the corona virus pandemic. The funds are to be allocated directly to the CPO fund.

Renewable Energy and Modeling GHG Emission Reductions Tied to UN Commitments

Indonesia committed to reducing greenhouse gas (GHG) emissions in energy and transportation sectors. In 2016, Indonesia submitted its Intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change, committing itself to reduce its total national GHG emissions by 29 percent by 2030 through domestic ventures, or 41 percent with international assistance.

Within the energy sector, the business as usual (BAU) emission scenario below shows emissions without consideration of 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 B30, within transportation sector is 90 percent under CM1 and 100 percent under CM2.

Table 1. Indonesia GHG Emission Reduction within Energy Sector

GHG Emission Level 2010	GHG Emission Level 2030			GHG Emission Reduction			
MTonne CO_2e	*MTonne CO_2e*			*MTonne CO_2e*		*Percent of BAU*	
	BAU	CM1	CM2	CM1	CM2	CM1	CM2
453.2	1,669	1,355	1,271	314	398	11	14

Source: Ministry of Environment and Forestry (MEOF)

Mandate and Pricing

A biofuel blending mandate was created in 2008 through MEMR Regulation 32. The blending mandate was most recently revised through MEMR Regulation 12, released in March 2015. MEMR regulation 12/2015 established biofuel-blending targets for transportation, industry and power generation sectors. Read earlier report here.

Table 2 shows GOI plans to increase biodiesel and bioethanol blending through 2025. While biodiesel remains on track, no progress has been made in fulfilling the bioethanol mandate.

Table 2. Indonesia Biofuels Mandatory Targets

Sector	Biodiesel			Bioethanol		
	2016	2020	2025	2016	2020	2025
Transportation, Public Service Obligation (PSO)	20%	30%	30%	2%	5%	20%
Transportation, Non-PSO	20%	30%	30%	5%	10%	20%
Industry	20%	30%	30%	5%	10%	20%
Electricity	30%	30%	30%			

Source: MEMR Regulation 12/2015

Accompanying the mandate program, GOI sets market index prices for both bioethanol and biodiesel on a monthly basis. Since 2016 domestic molasses prices published by state-owned agricultural trade company KPB are used as the basis of bioethanol. Prior to 2016 an Argus based price was utilized. For biodiesel prices GOI uses CPO prices published by the same state-owned company as reference.

Table 3. Biofuels Market Index Price (HIP) Formula

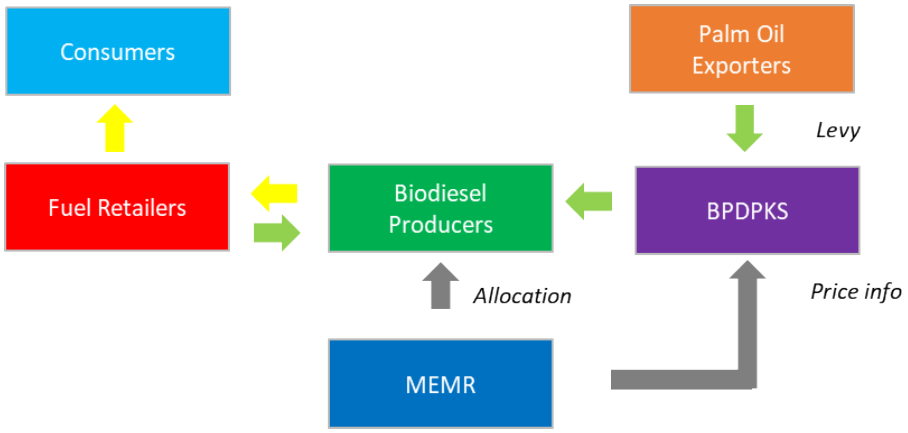
HIP Formula (IDR/liter)	
Biodiesel	= (CPO Price *IDR/kg* + 80 *$/ton*) x 870 kg/$m^3$ + tranportation cost
Bioethanol	= (Molasses price *IDR/kg* x 4.125 *kg/l*) + 0.25 *$/l*

Source: MEMR

Financial Supports

In 2015, the financial support mechanism for domestic biodiesel consumption was completely overhauled. The new scheme, with slight modifications as needed, has proven effective and durable thus far. Managed by the Oil Palm Plantation Fund Management Agency (BPDPKS), funds are collected from a palm oil export levy to offset the price gap between biodiesel and fossil diesel. The agency also uses the fund for research and development, replanting and palm promotion activities.

Figure 2. Indonesia Biodiesel Support Fund Mechanism



In December 2018, the GOI changed its export levy formulation from a flat-rate to a price-based structure in response to declining CPO prices. In early 2019 GOI halted levy collection altogether, leading to no new revenues being collected by the CPO fund for the entirety of 2019. Collection of the levy resumed in January 2020 as CPO prices passed $600 per ton in expectation of B30 implementation. In June 2020, GOI again modified the export levy structure back to a flat rate, adding an additional $5 per ton for palm oil product exports in 24 categories, including palm biodiesel. The change is stated in Ministry of Finance (MOF) Regulation 57/2020 (See Table 4).

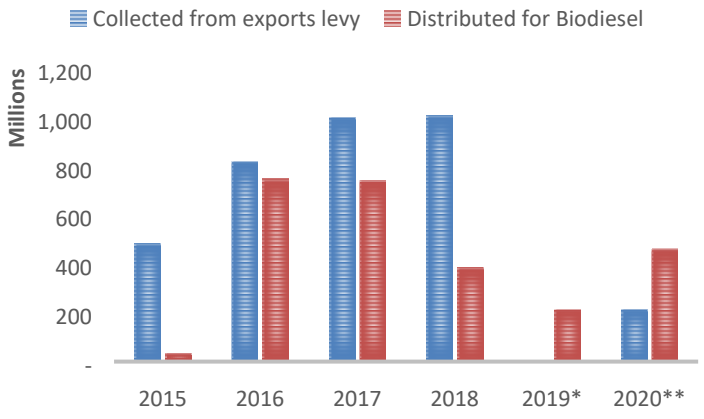
Table 4. New Exports Levy Structure, starting June 2020 ($/ton)

HS Code	Description	Old Levy, price based	New Levy, Flat
1511.1000	Crude palm oil (CPO)	0 - 50	55
1513.21.10	Crude Palm Kernel Oil (CPKO)	0 - 50	55
1511.90.20	Refined Bleached Deodorized (RBD) Palm Oil	0 - 20	25
1511.90.42 1511.90.49	Crude Palm Olein	0 - 50	55
1511.90.41	Crude Palm Stearin	0 - 50	55
3823.19.20	Palm Fatty Acid Distillate (PFAD)	0 - 40	45
3823.19.30	Palm Kernel Fatty Acid Distillate (PKFAD)	0 - 40	45
3826.00.90	Biodiesel contains Palm methyl ester (PME) more than 96.5 percent	0 - 20	25

Source: Ministry of Finance

Since 2015 and thru first quarter of 2020, revenue collected from the export levy is estimated at $3.52 billion (IDR 50.8 trillion), with the spending for biodiesel producer subsidies to meet domestic demand at $2.58 billion (IDR 37 trillion).

Figure 3. Collected Palm Oil Exports Levy and Use for Biodiesel Program ($)



*Note: *) as of November. **) Jan to March; Source: media reports*

Since early 2019 biodiesel supply allocations have been set on an annual basis. MEMR establishes volumes for fuel retailers (both private and state-owned companies) and assigns production allocations to biodiesel producers, who in turn supply palm oil-based biodiesel, also referred to as palm oil fatty acid methyl ester (PME) for blending. BPDPKS continues to disburse funds based on the spread between the diesel market index price published by Directorate General of Oil and Gas (DG Migas) and biodiesel index market price published by Directorate New and Renewable Energy (DG EBTKE). Both offices are parts of MEMR.

The 2020 B30 allocation was announced in late 2019, providing 18 biodiesel producers with volumes designated for fuel retailers (Table 5). The allocation is not expected to be achieved due to a decline in diesel consumption as a result of large-scale mobility restrictions applied from April to June 2020.

Table 5. List of Biodiesel Producers for 2020 Allocation

No	Biodiesel Producers	Volume (million liter)
1	Wilmar Nabati Indonesia	1,374
2	Wilmar Bioenergi Indonesia	1,323
3	Musim Mas	1,085
4	Bayas Biofuels	862
5	Cemerlang Energi Perkasa	483
6	LDC Indonesia	434
7	Permata Hijau Palm Oleo	417
8	Sinar Mas Bio Energy	396
9	Multi Nabati Sulawesi	393
10	Smart Tbk	383
11	Intibenua Perkasatama	354
12	Tunas Baru Lampung	342
13	Kutai Refinery Nusantara	336
14	Sukajadi Sawit Mekar	322
15	Darmex Biofuels	287
16	Batara Elok Semesta Terpadu	287
17	Ciliandra Perkasa	283
18	Pelita Agung Agrindustri	230
	Total	**9,590**

Source: MEMR

Import Policy, Import Duties and Export Taxes

Import duties for biofuels are listed below (Table 6). Based on MOT Regulation 21/2019, biofuels importation requires a recommendation from MEMR. This regulation replaces MOT 3/2015 by introducing online submission, reducing requirements for both exports and imports approval and

removing verification for biodiesel exports. Ministry of Finance (MOF) Regulation 6/2017 states the latest import duties for both undenatured ethanol and denatured ethanol.

Table 6. Import Duties on Biofuels

HS code	Description	Duty Rate (percent)
2207.10	Undenatured ethanol	30
2207.20	Denatured ethanol	30
3826.001	Biodiesel, with Coconut methyl ester (CME) content more than 70 percent	5
3826.002	Biodiesel, with ester alkyl content more than 96.5 percent	5
2710.20	Petroleum oils containing up to 30 percent biodiesel	0

Source: Ministry of Finance. Note: Imports of gasoline pre-blended with ethanol (HS code 2710.12) are not subject to any duty.

Indonesia is bound by several trade agreements, providing lower duties on ethanol imports. The latest agreement, a Preferential Trade Agreement (PTA) between Indonesia and Pakistan allows ethanol imports at zero percent beginning in 2019 as stated in Ministry of Finance (MOF) Regulation 14/2019 (See Table 7). Currently Pakistan only produces industrial grade ethanol.

In March 2020, Pertamina removed a prohibition on ethanol as a component in gasoline import tenders. The removal opens the market for ethanol-blended finished gasoline imported as RON 88 and RON 92 gasoline. The GOI has placed considerable pressure on Pertamina to reduce petroleum imports to improve the current account deficit, and this has thus far been realized through the country's biodiesel program which is reducing diesel imports. Although current volatility in oil prices and current gasoline-ethanol price relationships are likely to minimize opportunity in the near-term, Post estimates the tender opening has the potential to create up to 223 million gallons of new ethanol demand by 2022 and generate significant savings for Pertamina.

Table 7. Trade Agreements Providing Lower Ethanol Import Duties

Trade Agreement		Tariff Regulation	Ethanol Import Duty (HS Code 2207)
ATIGA	ASEAN	MOF Regulation 25/2017	0%
AKFTA	ASEAN-Korea	MOF Regulation 24/2017	5 % (2017 onward)
IJEPA	Indonesia – Japan	MOF Regulation 30/2017	11.25 % (2017)
			9.38 % (2018)
			7.5 % (2019)
			5.63 % (2020)
			3.75 % (2021)
			1.88 % (2022)
			0 % (2023 onward)
AJCEP	ASEAN - Japan	MOF Regulation 18/2018	13.82 % (2018)
			12.35 % (2019)
			10.88 % (2020)
			9.41 % (2021)
			7.94 % (2022)
			6.47 % (2023)
			5 % (2024)
			5 % (2025 onward)
PTA	Indonesia – Pakistan	MOF Regulation 14/2019	0 % (2019 onward)

Source: Compiled from MOF Regulations

Indonesia also imposes exports taxes (See Table 8) and exports levies (See Table 4) on biodiesel and its main feedstock, CPO. The export tax structure is price-based with the lowest threshold of $750 per ton based on CPO reference price.

Table 8. Price Structure of Export Tax on CPO, Biodiesel ($/ton)

	Price Treshold ($/ton)	Export Tax ($/ton)	
		CPO	Biodiesel
1	up to 750	0	0
2	more than 750 up to 800	3	0
3	more than 800 up to 850	18	0
4	more than 850 up to 900	33	0
5	more than 900 up to 950	52	0
6	more than 950 up to 1000	74	0
7	more than 1000 up to 1050	93	1
8	more than 1050 up to 1100	116	3
9	more than 1100 up to 1150	144	3
10	more than 1150 up to 1200	166	36
11	more than 1200 up to 1250	183	36
12	more than 1250	200	64

Source: MOF Regulation 136/2015, MOF Regulation 75/2012

Environment Sustainability and Certification

Indonesia has no specific regulation on biofuel sustainability criteria for domestically consumed biodiesel for ethanol, environmental or otherwise. However, there are several domestic sustainability certification schemes available for palm oil production, such as RSPO and ISPO. Sustainability programs cover a range of common criteria including GHG emissions, land use, biodiversity and labor. The GOI has continued to push sustainability standards for all plantations through Presidential Regulation (Perpres) 44/2020. The regulation mandates all companies and smallholder growers adopt ISPO certification by 2025.

The European Union (EU) focus on biofuel sustainability criteria weighs heavily on the Indonesian biofuels sector and is a constant source of strife among high-level GOI officials and their EU counterparts. The EU outlined their sustainability criteria in its Renewable Energy Directive (RED) and RED II,

RED II officially entered into force in December 2018 and EU member states must transpose its provisions into national law by June 2021. 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 qualifies as high ILUC-risk feedstock and therefore PME must be capped then gradually decreased after 2023 to zero by 2030. However, the report also notes that some palm biodiesel production, under certain conditions, may be considered in the low ILUC risk category. The GOI continues to challenge this policy and the GOI requested a WTO dispute consultation in December

2019. In March 2020, Indonesia requested to establish a panel. A summary of the dispute and its current status can be found here.

Section III. Gasoline and Diesel Pools

RON 88 and RON 90 gasoline, differentiated by their octane level, account for over 80 percent of gasoline use in Indonesia. These are the two grades which may now contain ethanol in import tenders. Although no direct subsidies are provided for gasoline sales, the GOI does operate a compensation scheme for Premium by classifying RON 88 gasoline as public service obligation (PSO) fuel, which maintains stable pricing for consumers. In addition, Pertamina provides non-PSO gasoline with RON 90 quality, called Pertalite, retailed at a price closer with RON 88 than RON 92.

Table 9. Gasoline Retail Price and Sales Share

Type of Gasoline	Brand	Sale Share (%)		Price (IDR per liter)			
		2017	2018	Nov-17	Oct-18	Feb-19	Feb-20
RON 98	Pertamax Turbo	1.1	1.1	9,350	12,250	11,200	9,850
RON 92	Pertamax	18.4	16.4	8,400	10,400	9,850	9,000
RON 90	Pertalite	43.2	51.4	7,500	7,800	7,650	7,650
RON 88	Premium	37.2	31.1	6,550	6,550	6,550	6,550

Source: Pertamina, MEMR

As of January 2020, all diesel use (aside from a few narrow exceptions) is required to utilize a B30 blend rate. PSO diesel is retailed at a subsidized price of IDR 5150 throughout Java island. GOI has allocated diesel subsidy of IDR 1000 per liter in 2020, half the amount from the previous year.

Gasoline retailers offer different fuel prices in each region or province. In general, Java and Bali receive the lowest pricing, while eastern Indonesia sees the highest due to logistical costs. Fuel prices in remote areas such in Papua may reach two or three times the prices on Java. The GOI program on single fuel price (BBM Satu Harga) aims to provide fair price for fuel in remote areas, mainly for PSO fuel. There were approximately 170 points of sale established under this program at the end of 2019.

Table 10. Diesel Retail Price (IDR per liter) and Sale Share

Type of Diesel	Brand	Sale Share (%)		Price (IDR per liter)			
		2017	2018	Nov-17	Oct-18	Feb-19	Feb-20
Diesel CN 53	Pertamina Dex	0.6	0.6	8,800	11,850	11,700	10,200
Diesel CN 51	Dexlite	1.2	2	7,300	10,500	10,200	9,500
Diesel CN 48	Solar	91	91	5,150	5,150	5,150	5,150

Source: Source: Pertamina, MEMR

Indonesia's gasoline consumption has shown an average 3.9 percent growth year over year (2011-2018). The growth in consumption coupled with limited refining capacity has resulted in imported gasoline reaching about 50 percent of total consumption. The high level of imports has pressured Indonesia's

current account deficit and thereby become a GOI target for reduction. As part of it's efforts to reduce gasoline imports, Pertamina has begun testing alternate fuels including an alcohol-based fuel (Gasoline A20) that consists of 15 percent ethanol and 5 percent methanol.

Unlike gasoline, diesel consumption has seen ups and downs as industrial use, especially for power generation, has trended downward. Baring an exception, such as in 2018 when a disruption hit a major coal-fired power plant in East Java forcing the national electric company (PLN) to operate a diesel power plant as temporary replacement, diesel use for electricity generation is expected to continue declining as PLN transitions to more coal-fired power plants. Based on available PLN data, the blending rate for biodiesel 2015-2018 only reached between 4 – 7 percent.

In 2020, fuel use is forecast to drop as a result of GOI imposed large-scale social restriction (PSBB) measures from April to June. Post currently estimates an 18 percent year-over-year decline in the gasoline pool and a decline of 17-20 percent for on-road and diesel and total use. These diesel pool statistics include biodiesel which as noted is set to achieve a large year-over-year volume increase supported by the large blending increase.

Table 11. Indonesia, Fuel Use History

Fuel Use History (Million Liters)										
Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018	2019 [e]	2020 [f]
Gasoline Total	26,447	29,276	30,511	30,925	31,528	31,986	33,548	34,474	35,370	29,003
Diesel Total	37,497	37,743	36,124	34,651	30,912	30,039	31,441	33,251	34,116	28,320
On-road [e]	19,875	23,834	24,508	23,257	21,931	21,567	23,877	25,015	25,981	20,785
Construction, mining & agriculture [e]	2,250	2,265	2,167	2,079	1,855	1,802	1,886	1,995	2,047	1,945
Shipping [e]	3,905	3,429	1,974	1,884	1,647	2,003	2,079	2,186	2,242	2,130
Industry [e]	11,467	8,215	7,474	7,431	5,479	4,667	3,598	4,056	3,845	3,460
Jet Fuel Total	3,564	3,901	4,162	4,231	4,340	4,879	5,374	5,721	5,870	4,696
Total Fuel Markets	67,508	70,920	70,797	69,807	66,779	66,904	70,363	73,446	75,356	62,020

All diesel pool statistics above include blended biodiesel, but average rates vary. Source: MEMR; post estimation

Section IV. Ethanol

Consumption

Indonesia's Fuel Grade Ethanol (FGE) consumption has remained virtually zero since 2010 due to lack of financial support to run the blending program and a mandate that was never enforced. From 2006-2009, Pertamina was able to sell E2 gasoline on a limited basis due to state subsidies covering the price difference bioethanol and gasoline. However, due to increasing costs of production for FGE and limited state-budget for subsidies, Pertamina received limited supplies from ethanol producers and the E2 program collapsed after 2009.

Non-FGE consumption in 2020 is expected to slightly increase as the Covid-19 outbreak has greatly increased demand for antiseptics such as hand sanitizers. In addition to the antiseptic industry, non-FGE uses include pharmaceuticals, cosmetics, and chemical solvents. Post expects Indonesia ethanol consumption to increase to 163 million liters in 2020.

Production

Molasses is the main feedstock for the ethanol industry in Indonesia. In 2020, sugar production is expected to reach 2.05 million tons (see Indonesia Sugar Report 2020), providing about 1.35 million tons of molasses. However, competition for the valuable feedstock continues to pose challenges for local ethanol producers. In addition to ethanol, molasses is also sought after for use in food processing, the production of monosodium glutamate and for export.

Post expects Indonesia's ethanol production to reach 202 million liters in 2020, a slight increase from 2019. To produce this volume the ethanol industry will require about 820,000 tons of molasses.

Indonesia ethanol refinery capacity remains unchanged at 408 million liters in 2020. Currently, only three out of 14 ethanol plants nationwide are able to produce FGE, with a combined capacity of 100 million liters. This capacity falls far short of what is required to produce FGE for the nation-wide ethanol blending mandate as stated in MEMR Regulation 12/2015 (to reach a 2 percent nationwide blend rate for the PSO sector would require at least 421 million liters).

Previous industry plans for developing a new ethanol facility in Lampung, Province capable of utilizing multiple feedstocks were cancelled due to cost concerns related to domestic corn and cassava prices (Indonesia does not issue import permits for corn for use in ethanol production). The country's largest ethanol distiller is expanding its facility in East Java, enabling it to produce between 80 to 100 million liters of ethanol in 2021.

Table 112. Estimated Ethanol Required for Blending Mandate (Million Liter)

	2016	**2020**	**2025**
Transportation PSO Blending Mandate	*2%*	*5%*	*20%*
Estimate PSO Gasoline Use	21,034	9,034	10,473
Estimate Ethanol Required	421	452	2,095
Transportation Non-PSO Blending Mandate	*5%*	*10%*	*20%*
Estimate Non-PSO Gasoline Use	10,952	19,969	23,150
Estimate Ethanol Required	548	1,997	4,630
Total Ethanol	**968**	**2,449**	**6,725**

Trade

Under MOT Regulation 31/2020, GOI temporarily banned ethanol exports from March 2020 until end of June 2020. This prohibition is related to increasing domestic use for antiseptic products, including

hand sanitizers. This temporary ban is expected to reduce year-over year ethanol exports by 25 percent to 52 million liters.

The Philippines is the main market for Indonesian non-fuel ethanol exports. In 2019, 92 percent of exports were shipped to the Philippines, followed by Japan (6 percent) and Vietnam (1 percent). In 2019, Pakistan (76 percent) was top supplier ethanol imports (76 percent), followed by Germany (13 percent).

Production, Supply and Demand Statistics

Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters)										
Calendar Year	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020f**
Beginning Stocks	36	41	52	39	14	16	15	14	14	5
Fuel Begin Stocks	0	0	0	0	0	0	0	0	0	0
Production	220	205	207	202	205	205	195	200	200	202
Fuel Production	3	2	2	18	1	0	0	0	0	0
Imports	1	0	0	2	0	2	5	96	1	12
Fuel Imports	0	0	0	0	0	0	0	0	0	0
Exports	81	59	86	94	67	71	64	158	70	52
Fuel Exports	3	2	2	18	1	0	0	0	0	0
Consumption	134	135	135	135	136	137	137	138	139	163
Fuel Consumption	0	0	0	0	0	0	0	0	0	0
Ending Stocks	41	52	39	14	16	15	14	14	5	4
Fuel Ending Stocks	0	0	0	0	0	0	0	0	0	0
Total Balance Check	0	0	0	0	0	0	0	0	0	0
Fuel Balance Check	0	0	0	0	0	0	0	0	0	0
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 (%)	3%	2%	2%	18%	1%	0%	0%	0%	0%	0%
Feedstock Use for Fuel (1,000 MT)										
Molasses	11	6	7	72	4	0	0	0	0	0
Market Penetration (Million Liters)										
Fuel Ethanol	0	0	0	0	0	0	0	0	0	0
Gasoline	26,447	29,276	30,511	30,925	31,528	31,986	33,548	34,474	35,370	29,003
Blend Rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: TDM

Section V. Biodiesel

Indonesia's biodiesel mandate program is a nationwide directive to blend palm-based Fatty Acid Methyl Ester (FAME) with diesel to reduce fuel imports, generate domestic demand for palm oil and reduce emissions. The mandatory distribution is carried out by state-owned energy company and fuel retailer Pertamina as well as smaller private companies. Exceptions are provided for mining activities in remote and high-altitude areas where lower blending rates are permissible. Following the launch of B20 in the Public Sector Obligation (PSO) in 2016 and nationwide expansion in September 2018, GOI officially launched B30 in January 2020. The launch date coincides with schedule set by MEMR Regulation 12/2015. GOI appointed 18 biodiesel producers to supply 9.6 billion of FAME for the entire 2020 contracting period.

Consumption

Indonesia diesel-biodiesel consumption is expected to temporarily decline in 2020 due to the economic slowdown and social distancing measures related to Covid-19. On March 31, 2020 the Government of Indonesia (GOI) issued a regulation implementing Large-Scale Social Distancing (locally known as PSBB) to mitigate the spread of Covid-19. In April 2020, major cities including the greater Jakarta area (Bogor, Depok, Tangerang, Bekasi), Bandung, Surabaya, and Makassar forced non-essential businesses to close and drastically reduced public transportation. Although various "strategic industries" including fuel and gas have continued to operate, the overall impact of the measures are expected to decrease biodiesel consumption by 20 percent (compared to initial allocations) for a few months. However, due to the expansion of the biodiesel mandate from B20 to B30, overall consumption in 2020 is expected to increase by 20 percent to 7.7 billion liters compared to 2019.

Production

Post expects Indonesia biodiesel production to reach 7.8 billion liters in 2020, a slight increase of from 7.7 billion liters 2019. Nearly all production is expected to supply the B30 blending program.

Biodiesel production nameplate capacity has been stable at 11.3 billion liters since 2018. Facility expansions are underway in South Kalimantan and Lampung provinces, while a new production facility is being constructed in East Kalimantan with an expected opening in 2021. The expansion and new facility are expected to increase biodiesel nameplate capacity to 13 billion liters.

Trade

Indonesia's biodiesel exports are expected to collapse to a mere 100 million liters in 2020 which, if realized, would be the lowest on record since the program began in 2006. A couple factors are at play. The sharp drop in diesel prices has increased the PO-GO price spread far into the positive range (between $200-270/metric ton over the last few months) and is expected to remain positive, eliminating virtually all discretionary blending demand from China this year. Although no official ban has been placed on biodiesel exports, GOI has not issued any export recommendations since the implementation of B30 began in early 2020. In December 2019, the EU imposed 8-18 percent countervailing duties on Indonesian biodiesel on top of the MFN duty of 6.5 percent. In addition to these duties, EU diesel

demand (including import demand for biodiesel) is weaker in 2020 due to COVID-19 related economic slowdown. Beyond China and the EU, the United States is the only other larger potential market for Indonesian biodiesel, but sales to the U.S. market remain zero with high countervailing and anti-dumping duties in place.

In 2019, Indonesia shipped 1.27 billion liters of biodiesel mainly to China (54 percent) and the EU (45 percent). Other markets destination were South Korea and India.

Production, Supply and Demand Statistics

Biodiesel (Million Liters)										
Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018r	2019e	2020f
Beginning Stocks	16	29	27	11	97	94	110	152	258	294
Production	1,812	2,270	2,950	3,500	1,200	3,500	2,800	5,600	7,700	7,800
Imports	0	5	24	0	0	0	0	28	0	0
Exports	1,440	1,608	1,942	1,569	343	476	187	1,772	1,271	100
Consumption	359	669	1,048	1,845	860	3,008	2,572	3,750	6,393	7,700
Ending Stocks	29	27	11	97	94	110	152	258	294	294
BalanceCheck	0	0	0	0	0	0	0	0	0	0
Production Capacity (Million Liters)										
Number of Biorefineries	22	22	26	26	27	30	32	31	31	31
Nameplate Capacity	3,921	4,881	5,670	5,670	6,887	10,898	11,547	11,357	11,357	11,357
Capacity Use (%)	46.2%	46.5%	52.0%	61.7%	17.4%	32.1%	24.2%	49.3%	67.8%	68.7%
Feedstock Use for Fuel (1,000 MT)										
Crude Palm Oil (CPO)	1,667	2,088	2,714	3,220	1,104	3,220	2,576	5,152	7,084	7,176
Market Penetration (Million Liters)										
Biodiesel, on-road use	**237**	**449**	**734**	**1,292**	583	2,263	1,963	2,982	5,155	6,186
Diesel, on-road use	19,875	23,834	24,508	23,257	21,931	21,567	23,877	25,015	25,981	20,785
Blend Rate (%)	1.2%	1.9%	3.0%	5.6%	2.7%	10.5%	8.2%	11.9%	19.8%	29.8%
Diesel, total use	37,497	37,743	36,124	34,651	30,912	30,039	31,441	33,251	34,116	28,320

Source: TDM, MEMR, Post estimation (r: revised, e: estimate, f: forecast)

Section VI. Advanced Biofuels

Indonesia does not currently commercially produce hydrogenation-derived renewable diesel (HDRD). In January 2019, State-owned energy company Pertamina signed an agreement with Italian energy company ENI to develop a HDRD facility within Pertamina's refinery in Plaju, South Sumatera. In January 2020, Pertamina's disclosed that the agreement had been terminated, citing ongoing issues related to EU sustainability requirements for CPO.

Pertamina's trial on "drop-in" fuel from CPO has moved into developing a catalyst production facility in West Java with the capacity up to 1 million liter per day. The catalyst will be used to process CPO into "drop-in" renewable gasoline, renewable diesel and renewable jet fuel and is expected to commence in

2020. The joint venture agreement to develop this production facility was signed in December 2019 between Pertamina, Bandung Institute of Technology (ITB) and state-owned company Pupuk Kujang.

In July 2020, Pertamina conducted a 200km road test using a fuel made of 30 percent FAME (biodiesel), 50 percent conventional fossil diesel and 20 percent drop-in renewable diesel. This drop-in renewable diesel, made from refurbished bleached deodorized (RBD) palm oil, was produced at the Dumai oil refinery which has a daily refining capacity for this renewable equal to 1,000 barrels (159,000 liters). Pertamina has announced plans to continue conducting trial production in other refineries in Plaju and Cilacap.

Section VII. Notes on Statistical Data

Fuel Use History

Gasoline, diesel and jet fuel use history figures in Table 9 are based on MEMR Handbook of Energy & Economic Statistics of Indonesia 2018, specifically for 2011-2018. Year 2019 and 2020 are Post estimates.

Biodiesel

Consumption figures are based on MEMR statistics. Trade figures are based on Trade Data Monitor (TDM) data, under HS code 3826.00 and 2710.20. This report assumes that all product moving under these codes are B100 and B5, respectively.

The following table compiles CPO reference prices used to calculate the biodiesel market index price (HIP Biodiesel), while Diesel market index price (HIP Diesel) uses crude price as seen in Figure 1. Both reference prices are published monthly by MEMR.

Month	CPO Price (IDR/kg)		HIP Biodiesel (IDR /liter)		Crude Price (USD/BBL)		HIP Diesel (IDR/liter)	
	2019	*2020*	*2019*	*2020*	*2019*	*2020*	*2019*	*2020*
Jan	5,872	8,599	6,371	8,706	70.5	75.3	6,385	6,619
Feb	6,628	9,573	7,015	9,539	68.6	77.3	6,116	6,674
March	7,101	8,901	7,403	8,933	75.2	65.7	6,617	5,630
April	7,078	7,806	7,387	8,019	79.6	48.4	7,057	4,471
May	7,026	8,316	7,348	8,352	80.9	30.7	7,164	3,083
Jun	6,598	6,773	6,977	6,941	81.7	29.7	7,340	2,801
July	6,573		6,970		73.9		6,610	
Aug	6,394		6,795		76.7		6,754	
Sept	6,556		6,929		74.4		6,607	
Oct	7,038		7,358		75.5		6,679	
Nov	6,813		7,157		74.5		6,593	
Dec	7,690		7,914		72.5		6,374	

Source: MEMR

The following table shows CPO reference price used by MOT to determine both CPO export duty and Palm Methyl Ester (PME) export duty.

Month	CPO Reference Price ($/MT)			CPO Exports Duty ($/MT)			PME Exports Duty ($/MT)		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
Jan	697	503	730	0	0	0	0	0	0
Feb	694	565	840	0	0	18	0	0	0
March	709	596	787	0	0	3	0	0	0
April	712	568	654	0	0	0	0	0	0
May	703	573	635	0	0	0	0	0	0
Jun	687	547	569	0	0	0	0	0	0
July	678	542		0	0		0	0	
Aug	632	532		0	0		0	0	
Sept	604	556		0	0		0	0	
Oct	602	574		0	0		0	0	
Nov	578	571		0	0		0	0	
Dec	549	650		0	0		0	0	

Source: MOT and MOF

Attachments:

No Attachments