

Required Report: Required - Public Distribution

Date: December 08,2020

Report Number: MY2020-0013

Report Name: Biofuels Annual

Country: Malaysia

Post: Kuala Lumpur

Report Category: Biofuels

Prepared By: Abdul Ghani Wahab

Approved By: William Verzani

Report Highlights:

Biodiesel production in 2020 is expected to drop year over year by 16 percent to 1.25 billion liters due to a decrease in international and domestic diesel fuel demand stemming from the COVID-19 pandemic. The Government of Malaysia (GoM) has revised its B20 implementation date originally planned for the first quarter of 2020 to mid-2021. Exports of biodiesel in 2020 are projected at 345 million liters, a decrease of 48 percent compared to the record previous year. With no domestic feedstock industry to support it, Malaysia has no fuel ethanol program supported by imports despite associated human health and climate benefits.

Executive Summary:

Biodiesel production for calendar year 2020 is projected at 1.25 billion liters. This 16 percent lower level of production, compared to the previous year, is based on a major drop in international & domestic demand for diesel transport fuel due to the COVID-19 pandemic and a price spread favoring fossil diesel over palm oil-based biodiesel that has collapsed China's discretionary demand. Government support policies have become all the more important to maintain demand for biodiesel with lower crude oil and thus lower fossil diesel prices compared to biodiesel feedstock prices.

The Government of Malaysia (GoM) had intended to roll out a B20 mandate by the first quarter of 2020. However, media reports emerged in February 2020 confirming the GoM has delayed its B20 implementation date to mid-2021. With CPO's price premium over fossil diesel markedly higher in 2020 compared to 2019, the cost of maintaining the B10 blend mandate has also risen. Multiple analysts expect a national B20 rollout won't be realized until potentially 2022, supported by a return to price relationships more favorable for palm oil-based biodiesel.

Total 2020 consumption of biodiesel is forecast at 846 million liters (705 million liters from on-road use and 141 million liters from industry use), down three percent from the previous year, due to reduced economic activity resulting from the COVID-19 pandemic. With no expected change in blending year to year (notable given the unfavorable price development for biodiesel), this decline matches the decline in the diesel fuel pool. Biodiesel exports for the first nine months of 2020 (Jan – Sept) reached 332 million liters, 41 percent lower than the 566 million liters recorded during the same period of 2019. With the COVID-19 pandemic continuing to negatively impact international diesel demand and China's discretionary demand sharply reduced, Post forecasts total 2020 exports at roughly 345 million liters. The European Union remains the largest importer of Malaysian biodiesel while China's demand has all but disappeared.

The recent increase in ethanol imports and consumption stem from stronger pharmaceutical industry demand where ethanol is the main ingredient in disinfectant and sanitization products. Malaysia does not have a fuel ethanol program because it does not have the domestic feedstock industry to support it, and has been unwilling to create a program that would heavily or solely rely on imported feedstock or ethanol despite the benefits of such a program that would support improved human health and lower carbon emissions tied to climate change.

Policy and Programs

Mandates



The Government of Malaysia (GoM) released its National Biofuel Policy in 2006 with the stated objectives of utilizing environmentally friendly and sustainable energy sources to reduce dependency on fossil fuels and to help stabilize the palm oil (CPO) industry. In 2007, the Malaysian Parliament passed the Biofuel Industry Act, which included provisions from the National Biofuel Policy, to implement a biodiesel blend mandate. The Malaysian Palm Oil Board (MPOB), under the Ministry of Plantation Industries and Commodities (MPIC), is entrusted to implement the mandate nationwide.

Although the initial plan was to implement a five percent blend (B5) by 2008, full national implementation covering both Peninsular and East Malaysia was not achieved until 2014. With growing CPO stocks and declining CPO prices, the GoM decided to increase the mandated CPO blend rate for the transportation sector from five percent to seven percent in 2015, but this B7 goal was not fully met until 2016. To further promote domestic consumption of biodiesel in the transportation sector, the GoM released a new five-year strategy in late 2015 referred to as the “Eleventh Malaysia Plan (2016-2020)” to increase the blend rate in stages to 20 percent by 2020. Due to objections from the transportation industry reportedly related to the high cost of retrofitting vehicles to accommodate a blend rate higher

than seven percent, progress on this plan has been slow.

The move to a B10 mandate, originally scheduled for 2016, was not actually achieved until February 2019. A B20 rollout was originally scheduled for the first quarter of 2020. However, media reports emerged in February 2020, confirming the GoM had revised its B20 implementation date to mid-2021. Although the official B20 national implementation date has been pushed back by over a full year, MPIC did commence a full B20 mandate in the state of Sarawak in Borneo (which represents a very small portion of total Malaysian fuel consumption) in September 2020. With the COVID-19 pandemic continuing to ravage the Malaysian economy (which has significantly increased the cost of maintaining a blend mandate), multiple analysts expect a national B20 rollout won’t be realized until potentially 2022.

While the vast majority of domestically produced biodiesel is used by the transportation industry, the GoM also requires the use of it in the industrial sector (mainly to heat boilers and generate electricity). In July 2019, the GoM rolled-out a seven percent blend mandate for the industrial sector.

Planned and Actual Roll-Out of Blending Requirements

Blend	Transportation Sector*		Industrial Sector**	
	Planned Government Roll-Out	Actual Roll-Out	Planned Government Roll-Out	Actual Roll-Out
B5	2008	2014 (Nationwide)	None	None
B7	January 1, 2015	2016 (Nationwide)	Early 2019	July 2019
B10	Early 2019	February 1, 2019	N/A	N/A

B20	2020	Pending (currently scheduled for mid-2021)	N/A	N/A
------------	------	--	-----	-----

*Cars, trucks, vans, pickups, and small fishing vessels

**Diesel boilers

Price Support Subsidies

To ensure the nation's biofuel program is financially viable, the GoM uses an "Automatic Pricing Mechanism" (APM) to set biodiesel prices. Although the GoM has not published how the APM is calculated, researchers at the University of Technology Malaysia (UTM) estimated how the subsidy functioned when the mandate was at seven percent. Details on this widely accepted study can be found at: <http://palmoilis.mpob.gov.my/publications/OPIEJ/opiejv11n1-hanafi.pdf>. The following table depicts biodiesel subsidies based on the UTM research and GoM published prices for the current 10 percent blend mandate.

Estimated Subsidy on Ten Percent Blend Biodiesel from January to August 2020

Time Period	RBD Olein US\$/MT	Brent Oil Price US\$/Barrel	Estimated Diesel Price in US\$/Liter*	Estimated B10 Biodiesel price in US\$/Liter**	B10 Price in US\$/Liter Sold at Local Petrol Station ***	Subsidy (Percent difference)
Jan	773.50	63.60	0.488	0.509	0.501	-2
Feb	684.00	55.00	0.422	0.442	0.489	10
Mar	578.50	32.98	0.253	0.280	0.416	33
Apr	567.00	23.34	0.179	0.212	0.331	36
May	518.00	31.02	0.238	0.261	0.338	23
June	596.50	39.93	0.306	0.329	0.400	18
July	627.00	42.81	0.328	0.352	0.425	17
Aug	706.00	44.26	0.339	0.369	0.432	14

*Diesel price based on Brent crude oil (petroleum) monthly price – by Index Mundi

<https://www.indexmundi.com/commodities/?commodity=crude-oil&months=60>

** Estimated price based on UTM APM calculation inclusive of operational cost, oil companies' margin and station dealers' margin.

***As of January 2019, the GoM administration has capped the maximum price of the mandated biodiesel blend at a fixed rate of 2.18 Malaysian Ringgit (RM). Exchange rate on October 15, 2020: RM 4.15 = USD \$1.00

Up until December 2014, all fuels dispensed at Malaysian commercial refueling stations were subsidized by the GoM. Starting in January 2015, fuel prices began to be based on the Mean of Platts Singapore (MOPS) rolling average price of crude oil during the previous week and adjusted on a weekly basis, with price caps built in. The price of RON95 (the most frequently used unleaded vehicle gasoline in Malaysia) and B10 biodiesel are currently capped at RM 2.08/liter and RM 2.18/liter, respectively. Fuel subsidies kick-in if the price of these fuels surpass these established ceiling rates. The price of RON97 (a higher-octane gasoline option) is floated based on the market price without any cap while the price of liquid petroleum gas (LPG) has been fixed at RM 1.16 since March 2015.

Retail Prices of Petroleum Products per Liter from July - September 2020

Period	RON95		RON97		Diesel B10		LPG	
	RM	USD	RM	USD	RM	USD	RM	USD

July 4- 10	1.65	0.40	1.95	0.47	1.84	0.44	1.16	0.28
July 11-17	1.72	0.41	2.02	0.49	1.87	0.45	1.16	0.28
July 18-24	1.72	0.41	2.02	0.49	1.87	0.45	1.16	0.28
July 25-31	1.68	0.40	1.98	0.48	1.82	0.44	1.16	0.28
Aug 1-7	1.68	0.40	1.98	0.48	1.83	0.44	1.16	0.28
Aug 8-14	1.63	0.39	1.93	0.46	1.79	0.43	1.16	0.28
Aug 15-21	1.68	0.40	1.98	0.48	1.82	0.44	1.16	0.28
Aug 22-28	1.71	0.41	2.01	0.49	1.80	0.43	1.16	0.28
Aug 29- Sept 4	1.72	0.41	2.02	0.49	1.78	0.43	1.16	0.28
Sept 5-11	1.71	1.41	2.01	0.48	1.78	0.43	1.16	0.28
Sept 12-18	1.66	0.40	1.96	0.47	1.72	0.41	1.16	0.28
Sept 19-25	1.63	0.39	1.93	0.46	1.67	0.40	1.16	0.28
Sept 26 - Oct 2	1.68	0.40	1.98	0.48	1.71	0.41	1.16	0.28

Notes: Exchange rate on October 15, 2020 @ RM4.15 = USD\$1.00

In 2014, the GoM allocated US\$79 million to set up blending facilities and infrastructure to accommodate the country’s biodiesel mandate ambitions. As of November 2020, there are nine petroleum blending facilities serving 4,000 petrol stations (100% of the retail market) throughout Malaysia. Along with helping build the facilities, the allocated funds are also used to help subsidize the current ten percent blend mandate. The GoM replenishes these biodiesel funds on a regular basis by utilizing CPO export taxes and proceeds from normal petroleum diesel sales.

Renewable Energy Policy and Environmental Sustainability

Based on research conducted by MPOB, implementation of the previous seven percent blend mandate reportedly reduced greenhouse gas emissions by as much as 1.05 million tons per year. There have been no updates provided by MPOB on how the current ten percent blend mandate impacts greenhouse gas emissions.

At the 23rd Conference of the Parties to the 1992 United Nations Framework Convention on Climate Change (COP23) in November 2017, the Malaysian Minister of Water, Land, and Natural Resources highlighted Malaysia’s commitment to reduce carbon emission by over 13 million tons (carbon dioxide equivalent) by 2030. One of the key mitigation actions in this “Energy Efficiency Action Plan” is the use of CPO in blended petroleum diesel. Details of this commitment can be found at:

<https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Malaysia/1/INDC%20Malaysia%20Final%202027%20November%202015%20Revised%20Final%20UNFCCC.pdf>

Gasoline and Diesel Markets

Sales of new vehicles in 2019 increased less than one percent to 604,000 compared to 599,000 units in 2018. According to market analysts, for calendar year 2020, sales are forecast to drop to 500,000 units due to the COVID-19 pandemic and economic hardship associated with it. To stimulate the local car industry in 2020, the GoM has dramatically reduced the sales tax on new car purchases from June 15 to December 31.

Gasoline-powered vehicles are the most common in Malaysia, accounting for over 80 percent of new vehicle sales. Diesel-powered vehicle sales are growing slowly. Most diesel-run vehicles are trucks, buses, and pick-ups.

As stated in the “Price Support Subsidies” section above, there are two types of gasoline available in the Malaysian consumer fuel market, RON95 and the higher octane RON97. The price differential between the two has been roughly RM 0.30 or \$0.08 USD in recent months. For diesel, in addition to the ten percent blend (B10) biodiesel, many petrol retailers also offer “Euro5” diesel to consumers as an option. “Euro5” refers to the European exhaust emission standards which set limits on emissions of unhealthy pollutants from the exhaust system of motor vehicles. The other fuel source available for on-road transport is liquid petroleum gas (LPG) for vehicles retro-fitted with a natural gas propulsion system, commonly used by taxis and inter-city buses.

Effect of the COVID-19 Pandemic on the Malaysian Gasoline and Diesel Market

As the GoM introduced strict national movement controls for long periods of time in 2020 (i.e. March - May and October - November) and virus-wary consumers continue to minimize their travel, domestic consumption of gasoline for the year is expected to drop by 13.5 percent to 16 billion liters. Impacted by the ensuing economic slowdown, B10 biodiesel demand is expected to fall by nearly as much. Analysts expect on-road diesel use to drop by as much as 11 percent from 7.9 billion liters in 2019 to an estimated 7 billion liters in 2020.

Malaysia Fuel Use History

Fuel Use History (Million Liters)										
Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020f
Gasoline Pool 1/2/	10,535	14,008	16,350	16,413	16,541	17,325	17,359	18,530	18,400	15,919
Diesel Pool 1/	9,746	10,526	10,703	11,367	10,489	10,352	10,502	11,578	11,287	10,059
On-road	6,822	7,368	7,492	7,957	7,342	7,246	7,351	8,105	7,901	7,041
Agriculture	390	421	428	455	420	414	420	463	451	402
Construction & Mining	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Shipping & Rail	585	632	642	682	629	621	630	695	677	604
Industry	1,949	2,105	2,141	2,273	2,098	2,070	2,100	2,316	2,257	2,012
Jet Fuel Pool 1/3/	3,316	3,275	3,894	4,102	4,071	3,922	4,183	4,560	4,526	2,549
Fuel Pools Total 1/	23,597	27,809	30,947	31,882	31,101	31,599	32,044	34,668	34,213	28,527

Notes: 1/ Fuel pools are defined as fossil fuels plus all "bio-components" (biofuels) as well as MTBE if used in gasoline; 2/ Excludes 'aviation' gasoline; 3/ Interior flights + outbound international flights; f = forecast
 Source: Malaysia Energy Statistics Handbook 2019 with 2020 forecast modeled on International Energy Agency (IEA) fuel projections

Ethanol

Malaysia's Ethanol Supply and Demand

Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters)										
Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020f
Beginning Stocks	0	0	0	0	0	4	4	4	4	0
Fuel Begin Stocks	0	0	0	0	0	0	0	0	0	0

Production	0	0	0	0	0	0	0	0	0	0
Fuel Production	0	0	0	0	0	0	0	0	0	0
Imports	9	10	10	11	14	11	11	11	20	18
Fuel Imports	0	0	0	0	0	0	0	0	0	0
Exports	0	0	0	1	0	0	0	0	11	0
Fuel Exports	0	0	0	0	0	0	0	0	0	0
Consumption	9	10	10	10	10	11	11	11	13	18
Fuel Consumption	0	0	0	0	0	0	0	0	0	0
Ending Stocks	0	0	0	0	4	4	4	4	0	0
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

Notes: *f* = forecast, beverage ethanol is excluded

Source: Trade Data Monitor, HSCODE: 220720 – ethyl alcohol and other spirits, denatured of any strength

Although there are sugarcane plantations in Malaysia, a lack of economies of scale and high costs make ethanol production using cane or molasses untenable. Beyond these considerations, the supply of sugarcane is simply insufficient for any fuel ethanol program of scale given existing domestic demand in sugar milling, molasses for feed as well as potable and industrial uses for ethanol. A small amount of ethanol using palm oil mill effluent (POME) is produced in palm plantations throughout the country to generate electricity. However, this production is not on a commercial scale. The recent increase in ethanol imports and consumption stems from stronger pharmaceutical industry demand where ethanol is used as the main ingredient in disinfectant and sanitization products. Malaysia has been unwilling to create a fuel ethanol program that would be heavily or solely reliant on imported feedstock or ethanol despite benefits of such a program that would improve air quality and lower carbon emissions tied to climate change.

Biodiesel

Malaysia's Biodiesel Supply and Demand

Biodiesel (Million Liters)										
Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020f
Beginning Stocks	8	18	27	62	42	76	57	137	107	55
Production	222	235	510	475	743	582	854	1,100	1,480	1,247
Imports	0	0	0	0	0	0	0	0	0	0
Exports	54	31	190	95	194	91	256	560	663	345
Consumption	158	195	285	400	515	510	518	570	869	846
Ending Stocks	18	27	62	42	76	57	137	107	55	111
Balance Check	0	0	0	0	0	0	0	0	0	0

Production Capacity (Million Liters)										
Number of Biorefineries	11	14	13	18	18	17	16	15	19	18
Nameplate Capacity	1,576	2,101	2,120	3,109	2,527	2,248	2,239	2,174	2,426	2,442
Capacity Use (%)	14.1%	11.2%	24.1%	15.3%	29.4%	25.9%	38.1%	50.6%	61.0%	51.1%
Feedstock Use for Fuel (1,000 MT)										
Crude Palm Oil (CPO)	204	216	469	437	684	535	786	1,012	1,362	1,147
Market Penetration (Million Liters)										
Biodiesel, on-road use	158	195	285	400	515	510	518	570	790	705
Diesel Pool, on-road use 1/	6,822	7,368	7,492	7,957	7,342	7,246	7,351	8,105	7,901	7,041
Blend Rate (%)	2.3%	2.6%	3.8%	5.0%	7.0%	7.0%	7.0%	7.0%	10.0%	10.0%
Diesel Pool, total 1/	9,746	10,526	10,703	11,367	10,489	10,352	10,502	11,578	11,287	10,059

Notes: 1/ Fuel pools are defined as fossil fuels plus all "bio-components" (biofuels) blended with fossil diesel; f = forecast

Sources: MPOB for biodiesel production, capacity and trade data, Malaysia Energy Commission for diesel pool, and FAS Kuala Lumpur analysis for consumption, ending stocks and feedstock use estimates

Production

With a reported 19 processing plants online in 2019 (an increase of 4 from the previous year), production of biodiesel in Malaysia is significantly below full annual capacity of 2.5 billion liters. Due to industry overcapacity, the GoM is not issuing licenses for new processing plants and Post does not expect further expansion over the next multiple years. For 2020, Post believes only 18 plants are operational as there are reports that low export demand has made it unattractive for at least one facility to operate.



Palm Methyl Ester (biodiesel)



Palm Oil Fresh Fruit Bunch (feedstock)

Total national production of biodiesel for calendar year 2020 is projected at roughly 1.25 billion liters. This significantly lower level of production, compared to the previous year, is based on a major drop in

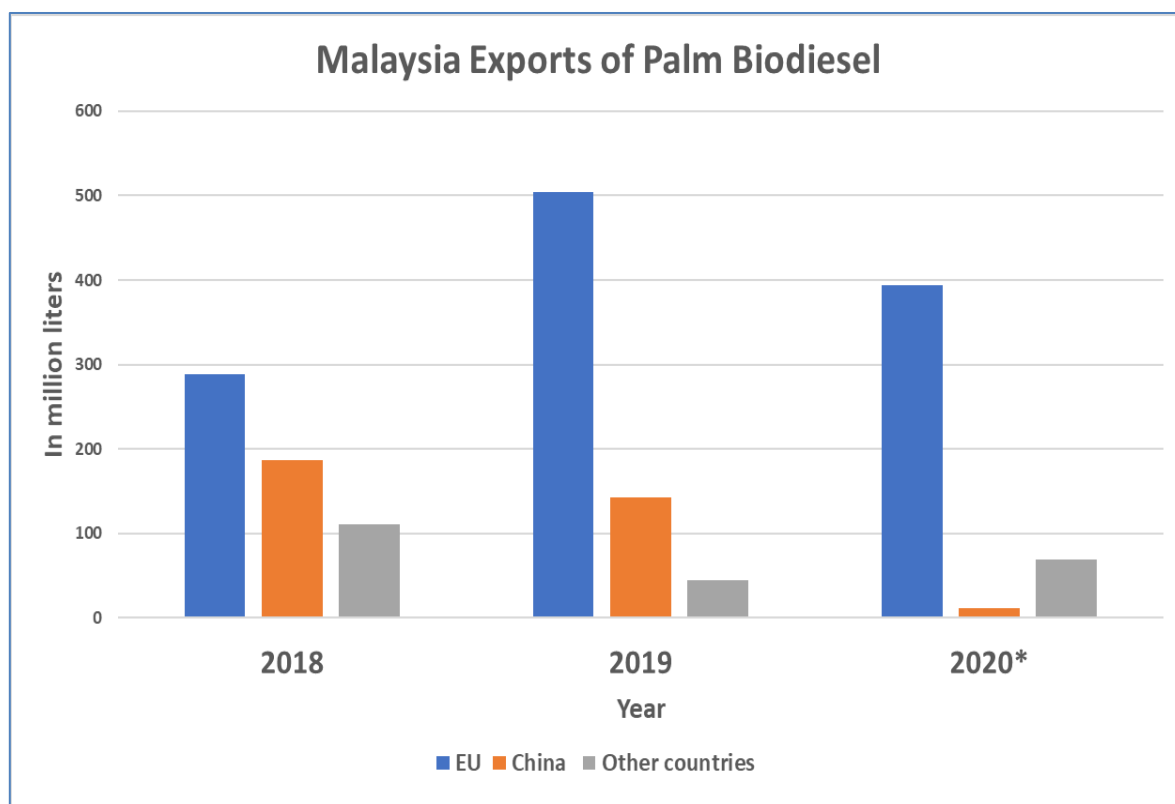
international & domestic demand due to the economic slowdown resulting from the COVID-19 pandemic. Also impacting the incentive to produce B10 biodiesel is the current large price differential between CPO and fossil diesel.

Consumption

Total calendar year 2020 consumption of biodiesel is forecast at 846 million liters (705 million liters from on-road use and 141 million from industrial use), down roughly three percent from the previous year, due to the economic slowdown tied to the COVID-19 pandemic.

Trade

According to MPOB data, exports for the first nine months of calendar year 2020 (Jan – Sept) reached 332 million liters, 41 percent lower than the 566 million liters recorded during the same period of 2019. With the COVID-19 pandemic continuing to negatively impact international diesel demand and China’s discretionary demand sharply reduced, Post forecasts total calendar year 2020 exports at 345 million liters. The European Union remains the largest importer of Malaysian biodiesel while China’s demand has all but disappeared.



*FAS/Kuala Lumpur estimate

Source: MBOB data

In early 2018, the European Parliament (EP) voted to ban the use of palm oil in biofuels by 2020. In June 2018, after objections from palm oil producing countries and weighing other considerations tied to EU internal market dynamics, EP agreed to a less harsh plan that phases-out the use of palm oil in biodiesel and renewable diesel in transport fuels. Under the revised resolution, the use of palm oil is capped at the 2019 level until 2023 and then subsequently reduced to zero by 2030. Additionally,

under the new resolution, all palm oil products for the biodiesel industry exported to the EU are required to be certified sustainable by a “single sustainability certification scheme”. As the matter remains politically sensitive to both Malaysia and Indonesia, the details of the resolution were left “yet to be agreed” by EU member countries.

According to industry analysts, the significant Malaysian biodiesel exports to China during the second half of 2018 and the first half of 2019 were due to the price of palm oil being significantly cheaper than the price of fossil diesel fuel during the time period. This is the key factor for the emergence of any large-volume sales to China which has no biodiesel mandate; larger-volume sales to China only arise driven by non-mandated “discretionary” demand supported by economics alone. The crude palm oil Bursa Malaysia front-month price averaged more than \$70-80 USD/metric ton cheaper than the ICE Gasoil (Diesel) ARA (Rotterdam/Ghent) front-month price from May 2018 through September 2019. Analysts report that Chinese traders typically import Malaysian and Indonesian biodiesel for blending purposes in the Chinese market when this so called “PO-GO” price spread falls below the minus \$70-\$80 price threshold. Starting November 2019, the PO-GO price spread rapidly moved into positive territory, and by August 2020 had surpassed the low \$300 USD/metric ton range (the highest recorded since 2012), and by November 2020 had reached an average value of \$489 USD/metric ton.

Advanced Biofuels

Although research of second-generation renewable fuels from palm biomass and biogas has been ongoing since 2002, product development and commercialization have been hindered by a lack of investment and a low oil price environment following the oil price collapse of 2014.

Appendix

Operating Biodiesel Plants in Malaysia, 2019

- 1 Bremfield Sdn. Bhd. Pulau Indah, Selangor
- 2 Carotino Sdn Bhd Pasir Gudang, Johor
- 3 FGV Biotechnologies Sdn Bhd Kuala Lumpur
- 4 Fima Biodiesel Sdn Bhd Port Klang, Selangor
- 5 Future Prelude Sdn Bhd Port Klang, Selangor
- 6 Genting Biodiesel Sdn Bhd Kuala Lumpur
- 7 Green Edible Oil Sdn Bhd Sandakan, Sabah
- 8 Gulf Lubes Malaysia Sdn Bhd Pulau Indah, Selangor
- 9 KLK Bioenergy Sdn Bhd Shah Alam, Selangor
- 10 Nexsol (Malaysia) Sdn Bhd Pasir Gudang, Johor
- 11 PGEO BioProducts Sdn Bhd Pasir Gudang, Johor
- 12 Sime Darby Oils Biodiesel Sdn Bhd Carey Island, Selangor
- 13 SOP Green Energy Sdn Bhd Miri, Sarawak
- 14 SPC Biodiesel Sdn Bhd Kuala Lumpur
- 15 Vance Bioenergy Sdn Bhd Pasir Gudang, Johor
16. PGEO BioProducts Sdn Bhd – Pasir Gudang, Johor
17. Excelvite Sdn Bhd – Ipoh Perak
18. Supervitamins Sdn Bhd - Masai Johor

19. Petron Malaysia Refining and Marketing – Sitiawan, Perak

Source: MPOB

Attachments:

No Attachments