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Indonesia's Ethanol Dilemma

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Report Highlights:
Indonesia's plans to develop bioethanol continue to face strong headwinds from costly inputs, capacity limitations and trade restrictions limiting imports of alternative feedstock.

General Information:

Background

Indonesia currently uses molasses as the main feedstock for producing ethanol. The number of ethanol producers has decreased in recent years following environmental citations and increasing competition for molasses from the monosodium glutamate (MSG) industry and traders selling to export markets. Of the three companies capable of producing fuel-grade ethanol (PT Molindo Raya and PT Energi Agro Nusantara on the island of Java and Indo Lampung Distillery on the island of Sumatera) none consistently produce significant quantities. Instead, ethanol is used primarily for industrial applications such as cosmetics, pharmaceuticals, cigarettes, ink and paint. Additionally, industry has also faced vulnerability to the overall supply of sugarcane due to weather events, such as drought in 2016, and decreasing supplies due to competition from other crops that can produce a better return for farmers.

Despite a bioethanol mandate of 1 percent of minimum volume for Public Service Obligation (PSO) transportation in April 2015 and 2 percent in 2016 (Regulation 12/2015), currently no fuel-grade ethanol is produced in Indonesia. Unlike biodiesel, Indonesia's ethanol blending mandate program has remained inactive due to the lack of a financing scheme to cover the cost difference for bioethanol. Figures for Indonesia's total fuel-grade ethanol capacity vary from the Ministry of Energy and Mineral Resources (MEMR) and private companies, but range between 40,000 – 100,000 KL/Year (approx.. 10.5 to 26.4 million gallons). By contrast an average U.S. fuel ethanol plant has capacity to produce nearly 80 million gallons per year.

Challenges in moving towards E2 and E5

As part of a roadmap towards an E5 program throughout Indonesia, MEMR plans to implement a regional E2 blending program in 2018. The program will take place in Jakarta and its surrounding area where the logistics of blending and distributing are achievable.

The stated goals of the bioethanol mandate and adoption of the E2 and E5 programs is to support national energy security, increase economic added-value by expanding the biofuel industrial base, decrease consumption of imported refined oil and reduce greenhouse gas emissions. However, several key challenges will likely continue for the foreseeable future:

Price Competitiveness

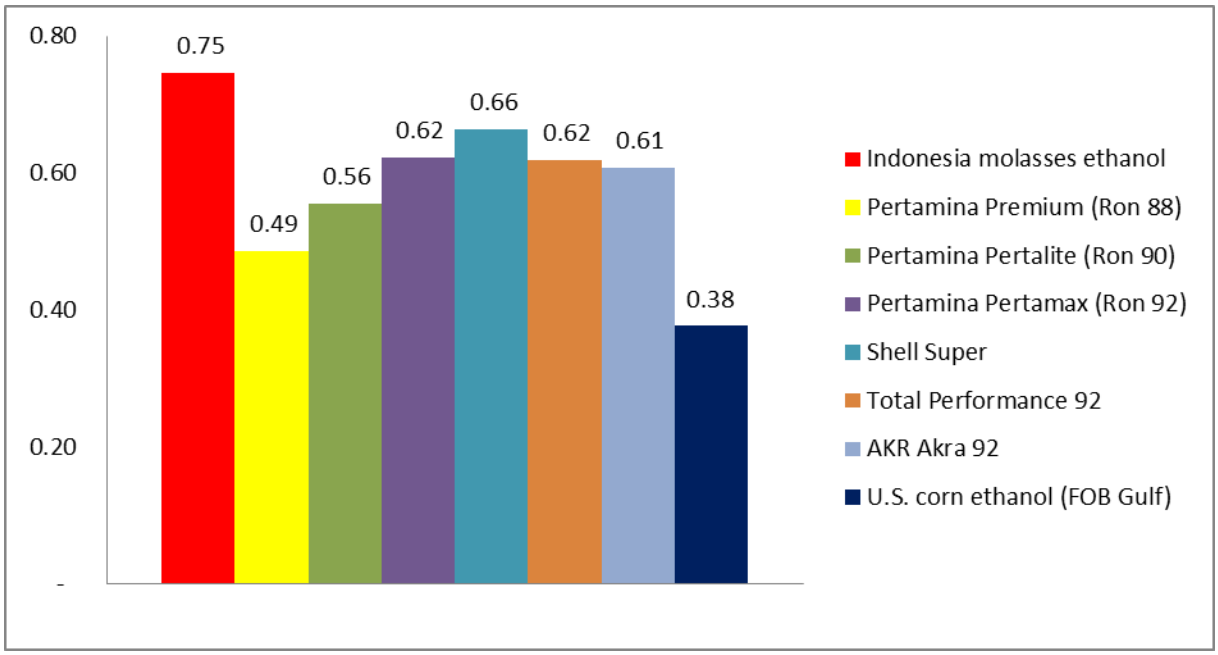
In 2016, the Government of Indonesia (GOI) revised the bioethanol market index price from an Argus price-based formula to a molasses-based formula (Regulation 6034/2016). The molasses price is based on a price issued by state-owned company Kharisma Pemasaran Bersama (KPB). Although the new formula improves the price offered to bioethanol producers, in practice the issue is moot, as the GOI does not currently have available financial supports to fund the formula. The price formula is as follows:

HIP Ethanol= (Average 3 months molasses x 4.125 Kg/L) + 0.25 USD/Liter

Price competitiveness is the main reason why Indonesia's ethanol blending mandate program has not succeeded. As of November 2017 (Figure 1), local-produced molasses ethanol is priced at IDR 10,074 per liter (equal to USD 0.75 per liter at and exchange of 1 USD= IDR 13,500). With no subsidy scheme

(either from state budget or private sector such as with the current levy on crude palm oil exports for biodiesel); there is no incentive to produce significant quantities of fuel-grade ethanol. It remains to be seen how this price gap will be managed with the launch of the regional E2 program for blending with Pertamina Pertamax (Ron 92) grade fuel.

Figure 1. Ethanol and gasoline prices in Indonesia as of November 2017 (USD per liter)



Source: MEMR, BPHMigas, U.S. Grains Council (note: 1 USD = IDR 13500)

Infrastructure and Capacity

Indonesia's gasoline consumption has grown 4.8 percent annually since 2011. In 2016, gasoline consumption reached 32 billion liters. A significant consumption switch occurred in 2015-2016 from Premium (Ron 88) to Pertalite (Ron 90) as the price narrowed. In addition to the pricing gap, one reason GOI is moving forward with a regional E2 program as opposed to a nationwide rollout of an E5 program is the lack of capacity within the industry itself. MEMR estimates the current ethanol need for Jakarta and the surrounding areas to implement an E5 program would be 85,000KL/year, which is more than double the current national capacity based on GOI estimates. Other regulations, such as restricting the commingling of storage tanks only increase the distribution challenge as additional separate storage facilities would need to be built.

Feedstock Constraints

The shrinking size of Indonesia's sugarcane crop, and in turn molasses, is a primary constraint on the expansion of ethanol production. Indonesian distillers would like to use other less costly and widely available feedstock for ethanol production (such as corn), but are hamstrung by import restrictions that are meant to encourage local production. Although Indonesia does allow imports of corn for industrial use and processing, including starch and glucose, they remain restricted for feed and other uses.

The road ahead for Ethanol

Indonesia's strong biodiesel program funded by export taxes on palm oil has led to a significant increase in biodiesel usage, especially in the public transportation sector. The program has closed the pricing gap between biodiesel and diesel and has been a significant part of GOI's plan to increase renewable energy use to 23 percent by 2025 as stated in National Energy Policy.

As the rollout of E2 begins in 2018, Indonesia will again face a chicken or egg situation with the incorporation of ethanol as a viable renewable fuel in the long-term. Without a funding mechanism to address the price gap between ethanol produced from local molasses and gasoline it is unlikely local distillers will invest in increased capacity, storage and distribution of fuel-grade ethanol and without an increased supply it seems unlikely the GOI will succeed in growing the E2 program beyond a regional pilot. The current GOI policy restricting imports of imported feedstocks, such as corn, for the production of ethanol only further inhibits distillers' ability to reach a market based price comparison with gasoline.

Ultimately, the State-owned energy giant, Pertamina, may play an outsized role in the success of any ethanol program. The company is experienced in E2 fuel distribution having already sold E2 gasoline branded as BioPremium during 2008-2011 and currently controls more than 90 percent of fuel sales in Indonesia. The company considers ethanol a "priority area", though it also sees it as requiring further evaluation and commercialization development.