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BRIEFINGNOTE

Practical Implications of Fossil-Fuel Subsidy Reform for the Energy Supply Chain in Indonesia

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This briefing note examines the practical short-term implications for Indonesia's energy supply chain of steps towards fossil-fuel subsidy reform. What impacts were witnessed following recent gasoline and diesel price hikes in June 2013? What might we expect in the future? What does this mean for the planning of more comprehensive, long-term fossil-fuel subsidy reform?



Introduction

Several times in recent years the Indonesian government has announced new initiatives to reduce fossil-fuel subsidies, only to be challenged by various advocates of low-cost fuel. Problems are also posed by the long lead times necessary to ensure adequate fuel supplies, given likely changes in demand for each grade of transport fuels that will result from higher basic fuel prices. It is clear that the impact of fuel subsidy reform on Indonesia's fuel supply chain must be considered as the country defines new ways to reform fuel-pricing practices.

The first section of this paper provides some key statistics on the current sales of transport fuels. The figures demonstrate the respective usage of diesel oil and gasoline, and of the different grades of gasoline, highlighting the current heavy reliance on fuel imports into Indonesia. Section Two briefly examines the impacts of the most recent reduction in gasoline and diesel subsidies. Section Three then looks at the schemes and proposals the government is currently considering to further reduce subsidy expenditure. Section Four assesses the impact these schemes might have on the fuel supply chain, while the final section highlights some other key effects of subsidy reform that the government should consider when thinking about impacts on fuel supply.

Comprehensive fuel subsidy reform in Indonesia over time should result in higher fuel prices and a more market-oriented downstream petroleum sector. Reform is also likely to have far-reaching long-term consequences for Indonesia's fuel supply chains. Market-based pricing will both enhance the cash flows of downstream companies and send clearer price signals to these companies that will assist timely investment in downstream capacity (including in retail, refining and distribution capacity). This in turn is likely to broadly enhance the reliability of fuel supply and liquid-fuel security in Indonesia. This briefing note, however, does not consider these potential longer-term structural effects, instead concentrating on the immediate implications of short-term subsidy reform efforts for demand and supply of different fuels and fuel types.

1.0 Demand Profile for Transport Fuels

In considering how fossil-fuel subsidy reform will affect energy supply in Indonesia, it is useful to be aware of the following features of the demand for transport fuels and of the supply chain (all figures taken from Synergy Downstream Solutions, 2014).

- **Dominance of gasoline and diesel:** Gasoline and diesel together account for about 84 per cent of all oil products sold, and the split between gasoline and diesel is almost equal at 42 per cent each.
- **Dominance of subsidized gasoline:** There are three grades of gasoline sold: RON 88 (which is subsidized) and RON 92 and RON 95 (both of which are not subsidized). The sales of subsidized RON 88 account for about 97 per cent of all the gasoline sold.
- **Heavy reliance on imports:** About 43 per cent of all refined fuel products consumed in Indonesia are imported. As regards gasoline, about 60 per cent of the subsidized RON 88 is imported, while a lower proportion is imported for non-subsidized gasoline: about 43 per cent of RON 92 and 20 per cent of RON 95.
- **Limited storage capacity:** Indonesia's operational stocks of oil products are sufficient for about 23 days of sales, but there are no back up emergency oil product stocks to draw on in the event of a supply disruption.



It is clear from the above that, at present, virtually all motorists choose to buy subsidized gasoline, rather than the much higher priced, superior quality gasoline grades. However a significant reduction in subsidies could result in greater demand for the better grades of gasoline. This in turn is likely to lead to a sudden increase in imports, unless domestic refineries are able to meet rising demand for these higher grades, which is unlikely. The lack of emergency stocks, and the relatively low level of operational stocks, mean that supply shortages could occur if there is a disruption to any key part of the supply chain. Such disruptions could include reduced imports due to international crises or disturbances, or accidents that might take a refinery, storage terminal or pipeline out of service.

2.0 Recent Gasoline and Diesel Price Increases

In June 2013, the Indonesian government finally bowed to fiscal pressure and announced an increase in the price of subsidized gasoline and diesel oil by IDR 2,000 (US\$ 0.18) per litre and IDR 1,000 (US\$ 0.09) per litre, respectively, representing a 44 per cent and a 22 per cent rise in prices (Jakarta Post, 2013).

There were a number of street demonstrations in various towns across the country in the first few days following this announcement, but these quickly subsided. The price increase also had little evident impact on the energy supply chain in the short-term. After the price increase, the gap between the subsidized price of gasoline (sold almost entirely by Pertamina) and the non-subsidized price of gasoline (sold by Pertamina and private companies such as Shell and Total) was still large enough (about IDR 3,500 (US\$ 0.31) per litre) to prevent most consumers from switching to higher-priced higher quality, non-subsidized gasoline. The same applied in the case of diesel, where the gap was still about IDR 4,000 (US\$ 0.35) per litre between subsidized and non-subsidized prices. As a result, there was very little immediate change in the volumes of both subsidized and non-subsidized gasoline and diesel produced by domestic refineries or imported (Synergy Downstream Solutions, 2014).

Evidence to date also suggests that higher prices have not prompted any discernible increase in gasoline and diesel oil conservation—certainly not enough to offset the general increase in additional vehicles entering the market each month—nor to create a noticeable migration to alternative fuels. It will be interesting to see if there are any longer-term impacts on fuel demand, such as gasoline and diesel sales below the recent growth trends, increased fuel conservation by consumers or more widespread use of alternative fuels such as CNG and LPG.

As a final comment on the recent price increase, it should be mentioned that the impact of the recent depreciation of the rupiah against the U.S. dollar (about 20 per cent in the second half of 2013) has almost entirely wiped out the savings from the rupiah subsidy expenditure that resulted from the June 2013 price increase. As mentioned in Section One, more than half of subsidized gasoline is imported, and the rupiah cost of importing large volumes of both gasoline and diesel to fill the shortfall in domestic refining capacity to meet market demand has increased significantly because of the weakening value of the rupiah.



3.0 Current Government Plans for Further Subsidy Reform

At present, the attention of the Government of Indonesia (GOI) seems to be focused on reducing the gasoline and diesel oil subsidy through two initiatives:

- (a) The first is to place a limit on the amount of subsidy that can be spent on gasoline and diesel oil sales during the current 2014 fiscal year. This approach is being championed by the Ministry of Finance (Indonesia Summit, 2014). When properly implemented, the plan would trigger an increase in the subsidized price of gasoline and diesel whenever the international price of oil increases beyond a level that can be accommodated by the agreed maximum subsidy amount. Indonesia's 2014 budget has already set a quota/cap on the sales of subsidized fuels (including, but not limited to, diesel and gasoline) but it remains to be seen whether prices will rise as this quota is used up. In any case, a 'fixed subsidy' of the kind being suggested is yet to be agreed upon.
- (b) The second initiative is to increase the substitution of gasoline and diesel oil by alternative fuels such as CNG, LPG and biofuels.

Over the past few years some other schemes have been proposed by the GOI to reduce fuel subsidies, including some that would allow the GOI to exert more control over who can consume subsidized oil products, and in what quantity. One example is the use of RFID (Radio Frequency Identification) technology. Following some pilot schemes carried out in 2011, the program appears to have been shelved, or has at least significantly stalled. This may be due to the cost of running and maintaining such a program and the time needed to install RFID equipment on many vehicles.

The government has also considered other schemes to limit the number of people who can access subsidized gasoline and diesel oil. These include making access dependent on a certain vehicle engine size, or limiting access only to certain groups such as motorbike owners and public transport operators.

4.0 Impacts on the Supply Chain of Annual Limits on the Subsidy Amount and Accelerating Gasoline and Diesel Substitution with Alternative Fuels

Limiting Annual Fuel Subsidy Amount

Annual limits on the subsidy amount will place much more pressure on the energy supply chain than the system has experienced in recent years, which saw sporadic, *ad hoc* price increases.

Under the existing *ad hoc* approach, the likelihood of price increases is flagged many months in advance, giving distributors of subsidized gasoline and diesel oil (essentially Pertamina) time to prepare, despite continuing uncertainty about the size of the price increase and a possible consumer migration to unsubsidized gasoline and diesel oil.

The proposed alternative scheme would indirectly tie retail fuel prices to changes in international oil prices, introducing a greater degree of uncertainty for supply chains. Volatility in international oil prices is well-known, and changes both up and down can be sudden. Under the proposed fixed-subsidy scheme, a sudden increase in international oil prices



may necessitate an increase in the price of subsidized gasoline and diesel. The impact on the supply chain will depend on the degree to which it narrows the gap between the higher subsidized price of gasoline and diesel oil reduces and the price of non-subsidized gasoline and diesel. This will determine how many motorists start purchasing a higher grade fuel. It is believed (though not yet rigorously proven) that a price gap of no more than IDR 1,500 to IDR 1,000 per litre (US\$ 0.13 to US\$ 0.09 per litre) would trigger such a switch to higher-grade fuels. If this occurs, it is likely to lead to increased demand for higher-grade gasoline (RON 92 and 94) and diesel. In such a scenario, storage capacity at service stations for these higher grades is likely to be inadequate. On the supply side, there would be an increase in the volume of imported fuels, as local refineries are unlikely to have the capacity to suddenly produce large volumes of these higher-grade fuels. At the same time these refiners are likely to be slow to invest in increased capacity to meet this change in demand if they believe that the increase in fuel prices is not likely to persist. Having said this, downstream operators and investors are likely to expect fuel prices to rise, given continued fiscal pressure on the GOI to rationalise subsidy expenditure in the short-to-medium-term.

Switching to Alternative Fuels

Whether or not demand will switch from traditional fuels to alternatives as a result of higher traditional fuel prices will depend on what factors determine the price of alternative fuels such as CNG and biofuels. If these price factors are linked to the international price of oil in the same way as fuel prices (under a proposed quota system), then the impact of a sudden increase in subsidized oil prices may be minimal, and prices of these alternative fuels may also rise. If this is not the case, then these alternative fuels will become more competitive, resulting in higher demand for them over time if price conditions persist long enough for consumers to change consumption habits.

However, it is not likely that the supply of these fuels can be increased quickly. The supply infrastructure needed for CNG is costly and may require the building of new pipelines, or the establishment of new mother stations to supply a number of nearby service stations by truck. Storage and dispensing facilities would also need to be installed at the service stations. A key point here is the uncertainty over the long-term price competitiveness of CNG. A sudden increase in demand for CNG as a transport fuel resulting from an increase in the subsidized price of gasoline and diesel is unlikely to prompt the kind of investment needed to markedly increase domestic distribution of CNG. Domestic CNG distribution is likely to be deferred until there is greater certainty on how long the higher subsidized prices of gasoline and diesel oil will remain in place.

In the case of biofuels, these will be blended into gasoline and diesel up to certain strict maximum levels (to avoid problems with car manufacture warranties), so there may be little scope to suddenly increase biofuels supply even if biofuels become more price competitive vis-à-vis gasoline and diesel.

5.0 Implications for the Government's Reform Preparations

The GOI should take two key factors into account when formulating and implementing a program for subsidy reform.

- (a) *Provide certainty for those investing in new supply chain infrastructure:* Investors will need to be sure of the sustainability of the changes in demand patterns, such as a significant migration by consumers away from gasoline RON 88 to higher-grade RON 92 and 94. With this assurance, domestic refiners can invest in upgrading capacity to meet this new demand. However, if this migration is due to just a short-lived narrowing of the price gap between unsubsidized and subsidized prices, then few investors will take this risk, and many



will assume that longer-term demand patterns will remain as they are. The GOI should therefore be clear that it is serious about subsidy reform, and work with downstream industry to jointly assess likely investment needs within domestic supply chains arising as a result of subsidy reform over time.

Another example is a potential switch to alternative fuels such as CNG. As mentioned above, costly investments will be needed to ensure there is widespread availability of CNG at retail points. Those funding these investments will need assurances from the GOI that it is committed to maintaining the long-term incentives that consumers will require to ensure they make this fuel switch (including investing in modifications to their vehicles). A sudden and short-lived increase in the prices of subsidized fuel will not be sufficient to generate this investment in alternative fuels. Here, too, the GOI should be clear in its broad timeframes for reforming fuel prices to help industry and consumers make the right investment choices to ensure reliable supply of traditional and alternative fuels.

(b) *Avoiding/minimising illegal use of subsidized fuel:* In mid 2011, the oil and gas regulatory agency BPH Migas issued a report stating that about 15 per cent of subsidized fuel was sold illegally to industrial users, who are obliged to pay market price (Jakarta Post, 2011). This was probably a conservative estimate given the significant difference at the time of writing between subsidized and non-subsidized prices, the latter having been more than double that of subsidized oil products until the price increase last June.

Of course, the simple solution is to take away any price difference that might incentivise illegal use. Before the GOI is ready to take this step, it is clear that programs which allow selective access to subsidized fuels—say at service stations for cars with certain engine sizes, or for motorbikes only—are not likely to work. However, programs that deny or restrict access for commercial transport operators might be more effective, although they can still be prone to abuse and leakage.

6.0 Other Subsidy Reform Considerations

As mentioned in Section 3, the GOI is considering a fixed, market-based subsidy scheme in which retail prices reflect smoothed changes in international prices. While this will free up some of the government revenue that is currently being spent on fuel subsidies for other under-funded government programs, such as healthcare and infrastructure, a substantial subsidy will still remain. There is a growing need to eliminate the entire subsidy as soon as possible to enable the government to fund some of its other high-priority programs. Two such programs are particularly relevant: increasing productivity, and improving air quality, especially in large cities.

National productivity at the time of writing is constrained by a lack of adequate infrastructure and vulnerability to potential energy supply shortages. Both factors might inhibit new investments. Regarding infrastructure, eliminating fuel subsidies will increase the pool of government revenue that can be spent on much-needed roads, ports, railways and public transport, which should help reduce transport and operating costs in Indonesia. This will in turn increase Indonesia's international competitiveness and help boost exports.

Steadily deteriorating air quality is another major concern. It is also one that does not attract the degree of attention it should, largely because the government does not publish reliable data on air quality. Air pollution is a concern for investors as well as the general public. Any ongoing fuel subsidy will encourage consumers (both private and commercial, including motorbike owners) to consume more fuel than if they were paying market prices for it. The



reduced attention to fuel conservation, and its negative impact on air quality, is one of the prices paid to allow the Indonesian public to continue buying cheap fuel.

In this context it should be noted that a new trade law was passed in February 2014 that enables the government to limit exports and imports, and to protect local industries and markets. The Deputy Minister for Trade revealed the government's philosophy behind this new law, stating "the law affirms our standpoint that Indonesia does not fully embrace free trade. What we seek is a balance between market efficiency and protection of various local stakeholders" (Jakarta Post, 2014). In the case of fuel subsidies, the government will ideally conclude that the best way to protect local stakeholders is to ensure that everyone pays a fair price for fuel. Among many other benefits, this will help improve air quality and allow for a much-needed redirection of revenues to upgrade infrastructure across the country so that local producers can be confident of doing business in both domestic and international markets.



References

Indonesia Summit (2014), Conference with *The Economist*, 15 January.

Jakarta Post (2011), '15 Percent of Subsidized Fuel Sold to Industry', 31 May.

Jakarta Post (2013), 'Government Finally Announces New Fuel Prices', 21 June.

Jakarta Post (2014), 'RI Raises the Bar on Protection', 12 February.

Synergy Downstream Solutions (2014), Presentation to Dewan Energi Nasional (National Energy Council), 25 February.



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