

Chapter 2

Oil Stockpile Options for Southeast Asia

2.1 Traditional Approach

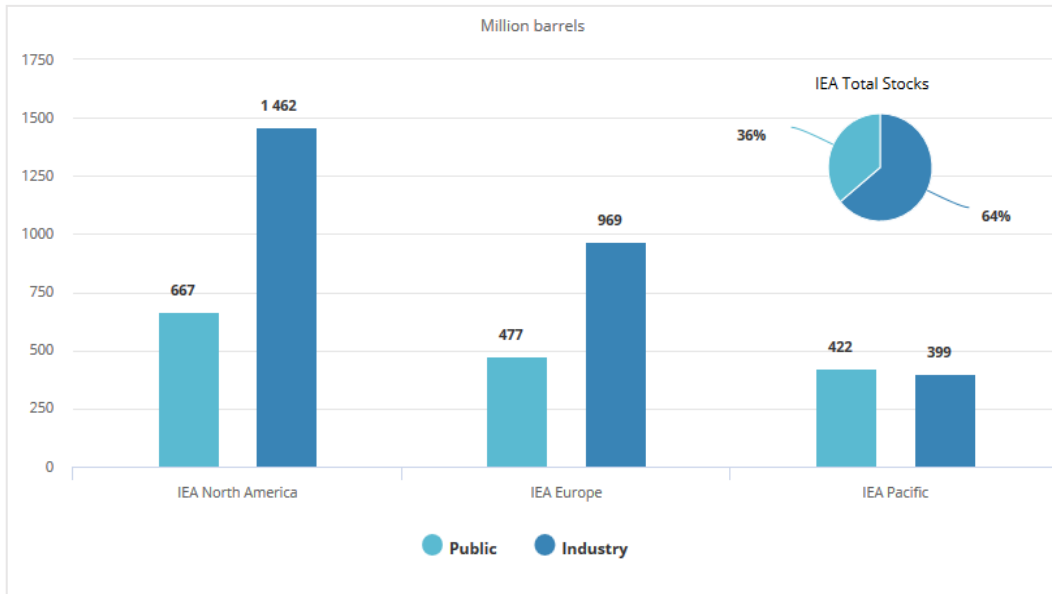
Holding stock is an indispensable part of the oil supply industry. Companies have always kept a certain amount as commercial stock to adjust demand and supply, irrespective of laws and regulations. However, in 1962, the Organisation for Economic Co-operation and Development (OECD) recommended that its member countries hold 60 days of stock in case of supply disruption because of growing concern over oil supply security since the Suez crisis in 1956. With the first oil crisis in 1973, OECD countries founded the IEA to coordinate energy security and policy among its members. Emergency response systems and oil stockpiling have been central to the role of the IEA, and holding 90 days' stock of net imports is a condition for IEA membership.

IEA member countries developed oil stockpiling based on industry stock. Japan initiated stockpile development in 1972 when the government recommended oil companies to hold 60 days of imports. In 1975, oil companies in Japan were obliged by law to hold 90 days of imports.

Government intervention in oil stockpiling was increasingly called for because of the oil crises of the 1970s, and several countries started to introduce government stocks. The United States established the Strategic Petroleum Reserve in 1975 and Japan followed in 1978. Many other IEA countries also introduced government stockpiling at different stages, but a significant number of countries do not have a government stockpiling scheme. Even in February 2018, industry stocks in IEA countries accounted for 64% of the total stock. (Figure 2-1)

Commercial stocks (and government stocks that use industry tanks) are usually located alongside oil supply logistics, such as import terminals, pipelines, refineries, and deposits. Government stocks are sometimes stand-alone, mainly because of security and land availability. For instance, the Shirashima stockpiling base in Japan is offshore, away from the country's refineries and import terminals. (Figure 2-2)

Figure 2-1: Oil Stocks in IEA Countries (February 2018)



IEA = International Energy Agency.
Source: IEA (2018).

Figure 2-2: Shirashima Stockpiling Base

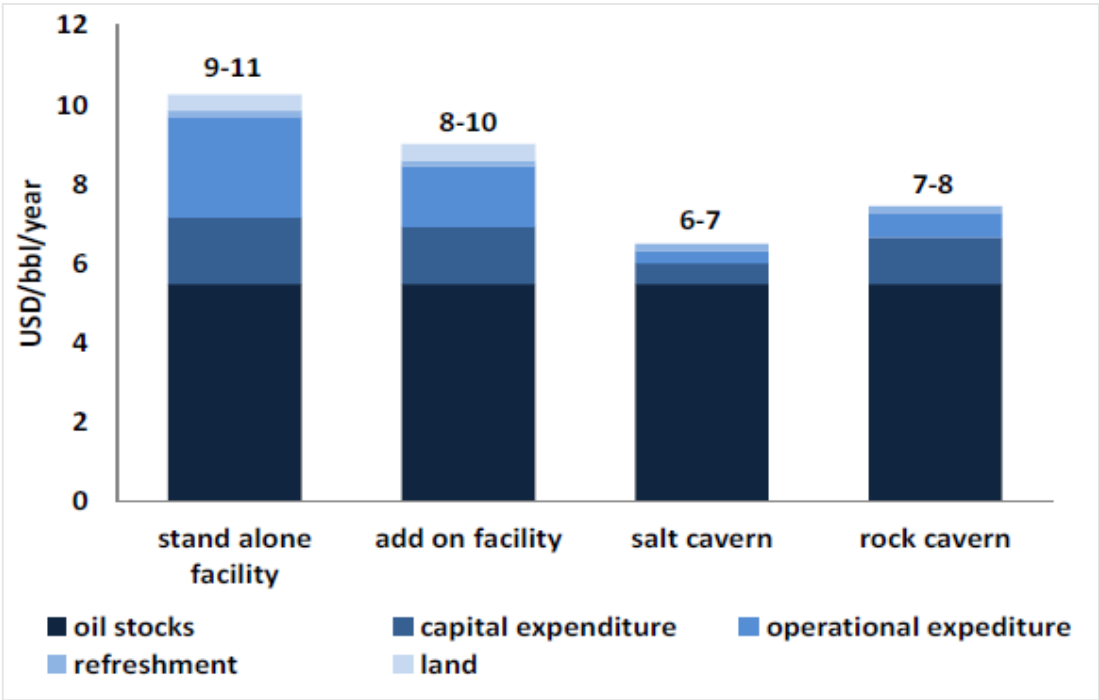


Source: JOGMEC (2018).

While the traditional approach, whereby stockpiling is institutionalised first through industry stocks and later through government stocks, is still viable for ASEAN countries, it carries a substantial financial burden. Figure 2-3 illustrates the stockpiling cost by facility type, which is \$6–\$11 per barrel per year according to the IEA. While oil stocks (crude purchase) share at least half of the total cost, capital and operational expenditures are also significant, especially for stand-alone and add-on facilities (i.e. onshore tank type in Figure 2-3).

Using the above cost range, Indonesia would have required as much as \$290 million–\$530 million in 2015 to meet the 30-day government stockpiling stipulation.³ The total budget of the MEMR was Rp15 trillion or \$1.1 billion in 2015 (MEMR 2018c). This shows the financial burden of oil stockpiling for Indonesia, and is likely similar in many other Southeast Asian countries.

Figure 2-3: Stockpiling Cost by Type (3% interest rate)



USD = United States dollar; bbl = barrel.
 Source: IEA (2013).

³ As mentioned in 1.2.3, the MEMR is preparing laws to oblige 30 days of government stocks as well as 25 days of commercial stock obligations.

2.2 Low-Cost Options

Financial constraints are common factors slowing down oil stockpiling in many countries in Southeast Asia. Since many governments in the region recognise the need for oil stockpiling, low-cost options should be identified to facilitate the process. Reducing costs, especially of crude purchase (oil stocks in Figure 2-3), is critical.

Stockpiling at existing oil terminals could lower the development cost of oil stockpiling, but lack of data and information prevents meaningful analysis. This section considers three options that could reduce or share the upfront cost (i.e. oil stocks and capital expenditure): (i) tickets, (ii) inviting tank operators, and (iii) joint stockpiling with crude exporters. Tickets are stockholding arrangements under which the seller agrees to hold (or reserve) an amount of oil on behalf of the buyer, in return for an agreed fee. The buyer of the ticket (or reservation) effectively owns the option to take delivery of physical stocks in times of crisis, according to conditions specified in the contract. Inviting private tank operators and joint stockpiling with crude operators could expand storage capacity, irrespective of institutionalised stockpiling, by using the financial and operational capacity of tank operators and/or crude exporters.

2.2.1 Tickets

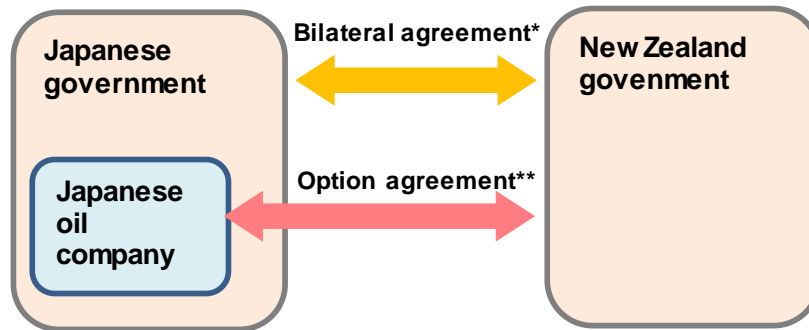
Ticket stockpiling refers to a scheme in which a country pays a ticket fee (charge for oil stockpiling) to count oil stock held by other countries as emergency oil stock. Tickets are instruments to outsource stockpiling to other countries. If the ticket stockpiling is conducted between two countries, both governments agree on the stockpiling of a specific amount of oil before agencies in the two countries make a contract. (Figure 2-4)

The ticket stockpiling system has been widely used in Europe. New Zealand has introduced the system in Asia and the Pacific. The governments of Japan and New Zealand made an agreement and a Japanese oil company and the Government of New Zealand subsequently made a ticket contract, under which New Zealand would pay a ticket fee and the Japanese oil company would promise to supply petroleum products to New Zealand in case of emergency.

Since entities that offer tickets already have storage and other infrastructure, ticket stockpiling does not require ticket buyers (those who use storage capacity) to bear capital expenditure. However, if conducted internationally, ticket stockpiling could evoke national security concerns because oil is stored in another country, especially if it is far away. Therefore, many countries set the upper limit of ticket stockpiling at 10% of the required oil stock.

Countries in Southeast Asia could establish a ticket stockpiling scheme to take advantage of the excess storage capacity of Singapore and Japan. However, ticket stockpiling may play a supplemental rather than mainstream role in Southeast Asia's stockpiling system because of national security concerns.

Figure 2-4: Ticket Stockpiling Scheme between Japan and New Zealand



***Bilateral agreement**

- Inventory for option contract is counted as stockpiling volume of New Zealand.
- When New Zealand exercises its option contract, Japan does not obstruct transportation of the stockpiling volume.

****Option agreement**

- New Zealand government purchases option to buy oil from Japanese oil company through option fee payment.

Source: IEEJ (2016).

2.2.2 Inviting Tank Operators

The traditional approach to stockpiling involves a company or government agency in one country as an investor in that country's stockpiling base. However, Southeast Asian countries can also invite independent tank operators to expand storage capacity. This is how Singapore has been successful in adding substantial capacity, especially since the 1980s. Companies such as Vopak, Tankstore, and Helios Energy own and operate most of the storage capacity in Singapore. These companies are already present in other countries in the region. Vopak, for instance, is a partner in Petroleum Industry Complex projects in Malaysia, and plans to develop 1.7 million m³ (11 mb) capacity in 2019 alone (Vopak 2017).

Tank companies will not invest unless it is commercially viable, so governments must create a stable and favourable investment climate before inviting them to participate. Oil stockpiling alone does not have any commercial value, especially in stand-alone facilities, so governments need to align commercial viability and oil supply security policy. They could invite tank companies primarily for the commercial use of storage capacity and possibly integrate part of the capacity for institutionalised stockpiling later.

2.2.3 Joint Stockpiling with Crude Exporters

Joint stockpiling refers to an arrangement in which a crude exporter stores its crude in an importing country in exchange for giving the importing country first drawing rights in case of emergency.

The Republic of Korea (henceforth, Korea) pioneered joint stockpiling with crude exporters when it signed a deal with Kuwait to store 2 mb of crude at Korea National Oil Corporation’s facilities in Korea. It signed another joint stockpiling deal in 2016 with Iran to store another 2 mb of crude. Japan followed, and stores Saudi and United Arab Emirates crude. India also has an agreement with the United Arab Emirates, and the first cargo for joint stockpiling arrived in May 2018 (ADNOC 2018). (Figure 2-5)

Figure 2-5: Joint Stockpiling Agreements between Crude Exporters and Asian Importers

Year of initial deal	Middle Eastern country	Asian country	Location of stockpile	Current volume (in MMbbls of stored crude oil)
2006	Kuwait	Rep. of Korea	n.a.	2
2009	UAE	Japan	Kiire	6.3
2010	Saudi Arabia	Japan	Okinawa	8.3
2012	UAE	Rep. of Korea	Yeosu	6
2016	UAE	India	Mangalore	6
2016	Iran	Rep. of Korea	Seosan	2

MMbbls = million barrels; n.a. = not available; UAE = United Arab Emirates.

Source: Kapsarc (2017).

Japan Oil, Gas and Metals National Corporation (JOGMEC) lends tank capacity to Saudi Aramco and Abu Dhabi National Oil Company (ADNOC) for free, and JOGMEC has the first right to access the crude in an emergency. Saudi Aramco and ADNOC use the facility for commercial purposes in ordinary times, and JOGMEC does not pay for the crude unless it uses it.

Joint stockpiling of this kind benefits both exporters and importers. For exporters, it enables better access to the demand market at a low cost. Intensifying competition between crude exporters or traders makes it essential not to miss business opportunities. Exporters who joint-stockpile their crude in importing countries can deliver the crude instantly, without long-haul transportation. In return, importing countries can expand their stock without paying crude to exporters. Importing countries also can ‘de-risk’ Middle Eastern crude since it has already transited the critical chokepoints of the straits of Hormuz and Malacca (Kapsarc 2017). Strengthening ties benefits both parties, providing supply security for importers and demand security for exporters.

Crude exporters such as Saudi Aramco and Kuwait Petroleum Corporation are increasing their presence in Southeast Asia. Saudi Aramco participates in major refinery projects such as the Refinery and Petrochemical Integrated Development (RAPID) in Malaysia and Cilacap in Indonesia. Kuwait Petroleum Corporation started commercial operations at Nghi Son refinery in Viet Nam in 2018. These refineries will provide significant tank capacity, which will enhance supply security. If Southeast Asian countries could leverage these projects and share the financial burden of stockpiling with crude exporters seeking downstream integration into the region, the financial burden for Southeast Asian governments and national oil companies could be significantly mitigated. Similar to other approaches to oil stockpiling, it is crucial to align the commercial viability of crude exporters and the security policy of Southeast Asian countries.