

## **The Status of Underground Petroleum Stockpiling Businesses and the New Construction Project in Korea**

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### **Abstract**

Korea is the world's 5th largest importer of oil and the 8th largest consumer of oil. However, the total amount of consumed oil in Korea is imported because of the lack of petroleum resources. Korea is highly dependent on crude oil from Middle East over 87%, so very vulnerable to oil shock. After experiencing the oil crisis twice in 1970s, Korea established KNOC and has been conducting the oil stockpiling in government and private section.

KNOC has been operating 9 stockpiling bases and 5 bases of them are the type of underground storage; 73% of the total capacity of stockpiling.

The principle of underground storage is to ensure the storage stability with sufficient hydraulic pressure around the storage cavern. When satisfying the vertical hydraulic gradient 1 or more, the water tightness and air tightness can be ensured. For that, KNOC operates water curtain system around the underground storage cavern. Underground storage type has disadvantages of long construction period and constraints for site selection, but has advantages of environmentally friendly, low operation cost, and semi-permanent usage life. It is very suitable for strategic stockpiling because is safe from natural disasters and terrorism, so it is a good model to be applied in Vietnam.

Nowadays, the package business of refinery extension and new underground storage cavern construction is conducting in Ulsan, Korea, utilizing the old aboveground tank site. After sales contract of old aboveground tank site, KNOC has been demolishing the storage tanks and began the new underground storage construction project. Through this business, Korean government can attract industrial investment of USD 8 billion, refining company can get enough area for refinery extension, and KNOC can construct more safe stockpiling facilities with site sales costs.

KNOC possesses advanced technologies of designing, constructing, and operating the underground petroleum storage cavern, and makes efforts on technical exchange through establishing technical network. And KNOC has a plan to making inroads into the world market with technical systemizing and advancing.