

# ASSESSING ENERGY POLICY INSTRUMENTS IN RESOURCE RICH COUNTRIES: A CASE STUDY FOR LNG IMPORT IN SAUDI ARABIA

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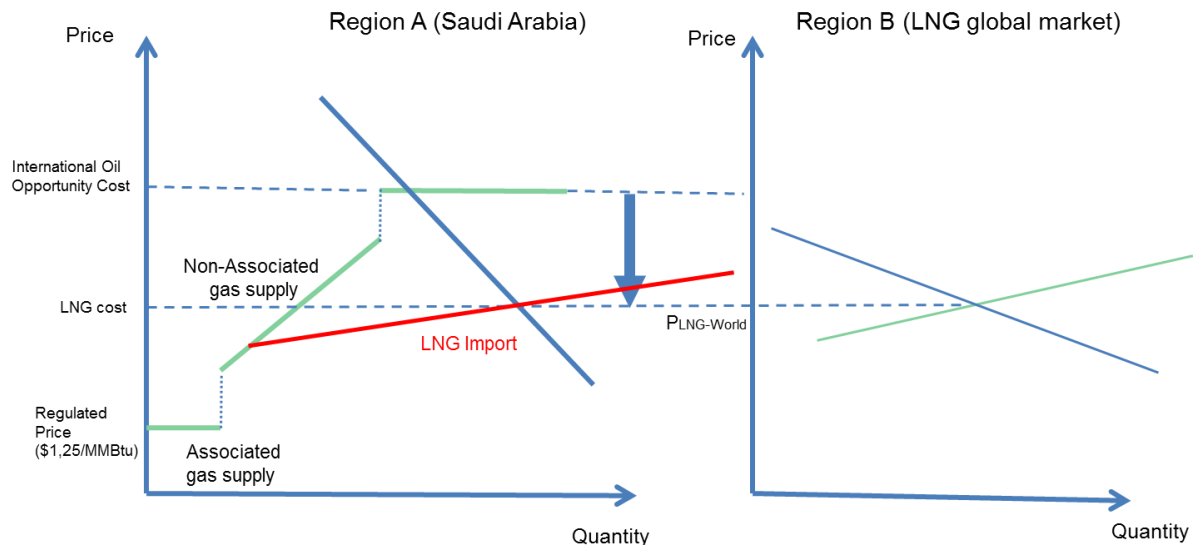
## Overview

Saudi Arabia burns diesel, crude oil, and heavy fuel oil (HFO) to generate electricity. Many initiatives are currently being assessed to reduce the high opportunity cost of oil burning for the country. The findings of our study examines the cost and implications of a very disruptive policy where Saudi Arabia imports liquefied natural gas (LNG).

We discuss the opportunity and benefits of such a policy in the local regulated energy market of Saudi-Arabia.

## Methods

We quantify the gas market equilibrium in Saudi Arabia.



To determine the possible and optimal sources to procure LNG into Saudi Arabia we use the World Gas Model (WGM) by Nexant. WGM is a partial equilibrium model which includes a database that covers all countries that produce, consume and transits gas. It also contains data on all the import and export terminals. The model optimizes supply and trade flows of gas, including LNG, to meet input demand for each node or country.

In WGM's database, Saudi Arabia, as a country node, is already allocated in the model. However, the model assumes the country's supply and demand for gas is well balanced even in the long term.

Two scenarios were tested: one floating storage and regasification unit (FSRU) with a 5mtpa capacity; the other scenario assumes 22 MTPA of LNG import capability to eliminate all liquid fuels from power generation; one with quarterly data on seasonality; electricity generation cost was benchmarked across oil and natural gas.

## Results

Saudi Arabia can import LNG for power generation at a discount to the opportunity cost of oil. Especially during the summer months, as Saudi Arabia's gas demand is counter-seasonal to major importing regions it leads to even more interesting market pricing conditions. The global LNG market can accommodate relatively large demand from Saudi Arabia without distorting significantly the global market pricing mechanism.

## Conclusions

Despite its apparent disruptiveness, a limited import of LNG in the west part of the country and during summer could be a worthwhile and relatively easy to implement policy instrument to improve Saudi Arabia energy security and adaptability during the current transition era.

Furthermore, the supply curve for the power generation industry is an interesting instrument to understand how Saudi Arabia could introduce market based energy pricing through international trade development.

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