

Abstract
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COAL TO SUBSTITUTE NATURAL GAS
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What initially prompted the production of substitute natural gas (SNG) in the United States was the concern over volatile natural gas prices, declining gas production and domestic energy security. These factors sparked a revival of interest in developing reliable domestic sources that are decoupled from the world oil market. SNG presents an opportunity for production from cheap and plentiful U.S. coal supplies, and has costs driven by coal prices and plant construction, rather than international energy markets.

The United States has many projects on the horizon for coal-to-SNG, but some of these projects are being delayed due to financing challenges or are being redesigned into another product from coal (instead of SNG) as a result of the recent fall in U.S. gas prices.

On the other hand, China's coal-to-SNG projects are progressing at full speed because China's gas prices are approximately 2–3 times higher than those in the United States. China has traditionally imported most of its gas either via pipeline from Russia or it has been shipped in as liquefied natural gas (LNG). Making its own SNG is one way for China to use its large coal assets rather than importing energy. China already has excellent logistics for moving coal with the existing rails and roadways. Therefore the delivery of SNG energy to the marketplace may occur through the existing and expanding pipeline infrastructure.

The main focus of this report is evaluating the techno-economics of SNG production from coal by the Shell gasification process integrated with the Haldor Topsoe TREMP™ methanation technology. The base case cost estimates are for producing 78 billion scf/yr of substitute natural gas that is of pipeline quality.



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