

North American's Artic Natural Gas

The United States is part of an integrated North American natural gas market. This market is composed of a pipeline system that allows for the movement of natural gas between production centers and end users through out the United States and across our borders between Canada and Mexico. The California Energy Commission uses the North America Region Gas Model (NARG) to forecast the annual price and volume of natural gas that is supplied from the various production centers to the end users.

The natural gas industry has become concerned that natural gas producers in the United States and Canada are finding it increasingly difficult to maintain the current production level. This is a result of the current production centers reaching maturity and starting their natural decline. The ability to sustain increases in production has been limited because many of the new fields are small and are quickly depleted.

This has led to increased interest from the industry for the development of regasification terminals in the United States to receive liquefied natural gas (LNG) and the development of known natural gas reserves in the artic. The paper on LNG outlined how the natural gas study would handle the timing for the development of LNG regasification terminals serving the U. S. market based on announced facilities and their estimated permitting and construction schedule. The other major source of new supplies for the North American natural gas market would be the development of the Artic natural gas resources (Mackenzie Delta and Alaska North Slope). The natural gas potential of the Artic region has been known for some time but its development has been dependent on the price of natural gas, protection of the environment during construction and operation, and overcoming the high cost for field development and pipeline construction.

Alaska's North Slope (ANS)

In the late 1970's oil and the associated natural gas commenced production on ANS. ANS production in 2002 was approximately 348 million barrels of crude oil along with 3.2 trillion cubic feet of associated natural gas. The majority of natural gas produced, 2.9 trillion cubic feet was re-injected. The re-injection of natural gas has served two purposes. It has increased the amount of crude oil that could be recovered from the ANS fields and allowed for the natural gas to be stored until producers develop the necessary intra-structure to move the gas to end users in the lower 48.

The Alaska Department of Natural Resources Division of Oil and Gas estimates that the state's proven natural gas reserves are 36.2 trillion cubic feet (Tcf), (North Slope 33.9 Tcf and Cook Inlet 2.2 Tcf). Although Alaska's Division of Oil and Gas indicates the proven natural gas reserves for the North Slope are approximately 34 Tcf these reserves are classified as potential natural gas resources in the NARG model. This is a result of the resource classification, to be classified as proven natural gas reserves the resource has to be recoverable under existing economically and operating conditions. At the present time there is no pipeline system to allow the natural gas to compete in the end user market.

The market potential for developing ANS gas has improved significantly with the increased long term price for natural gas. Various options and processes are being considered in order to transport ANS natural gas supplies to consumers. The options that have been proposed are a natural gas pipeline to the lower 48 states, a pipeline to Alaska's south coast (Valdez) where the natural gas would be converted to liquefied natural gas, or conversion to liquid through a gas-to-liquid process.

The ANS North Slope producers completed a study in 2002 assessing the feasibility for a pipeline to deliver natural gas to end users in the lower 48. The natural gas pipeline system under consideration by the producers would be capable of transporting approximately 4.5 billion cubic feet of natural gas per day (Bcfpd). The system could be expanded to a capacity of 5.6 Bcfpd. The extraction of liquids from the natural gas stream and fuel use required to transport the natural gas would result in approximately 4.0 to 5.0 Bcfpd being delivered to end users in the lower 48 for shipment to end users.

The current NARG model is based on an ANS pipeline system capable of delivering natural gas to the lower 48 starting in 2013. The model will forecast the volume of natural gas that would be supplied to the lower 48 based on the expected market price and supplies from other production centers.

Mackenzie Delta

The Mackenzie Delta located in Canada's Northwest Territories has a significant amount of natural gas resources. It is estimated that this region has potential natural gas reserves of 62 Tcf. The Mackenzie Gas Project plans to develop natural gas fields in the Mackenzie Delta and deliver this gas to markets through a pipeline system to be built through the Mackenzie valley. The current plans call for developing three proven natural gas fields (Taglu, Parsons Lake, and Niglintgak) that contain approximately 5.8 Tcf of reserves. It has been estimated that these three fields will supply approximately 800 million cubic feet per day (MMcfpd). Active exploration efforts by many companies will likely increase discovered reserves and boost production beyond the initial forecasted levels.

The current schedule for the Mackenzie Gas project indicates that it could be on line in 2010. Base on the costs to develop, produce, and transport the natural gas, the NARG model will set the natural gas price and volume carried on the pipeline.