



Supplying Energy to Remote Communities with Liquefied Natural Gas

Data Types: Production, economics, social statistics

Challenge Details: When cooled, natural gas can be liquefied (LNG) and shipped by tanker, barge, truck and rail. LNG shipped by these alternative methods could help to fuel remote communities, which currently have limited energy options. The Athabasca Chipewyan First Nations Community, located between Edmonton and Fort McMurray, Alberta, for instance, who currently obtain their energy from coal and diesel and have expressed concerns regarding air quality and health issues.

In this context, it is important to note that fuel technologies that may not be economically viable in urban areas could still be economical in remote areas where there are limited energy options and therefore higher-than-average energy prices.

For example, when world oil prices were more than \$100US per barrel, projects to convert natural gas to diesel fuel were under consideration by some companies in western Canada, since the feedstock cost of gas was low while the price of diesel was high enough that the venture might have been profitable despite the high capital and operating costs of gas-to-liquid (GTL) facilities.

This project requires the examination of a tight-gas play that would support a 100 kb/d GTL facility over 40 years. Look at the geologic extent of the play in the field, the typical decline curves and the estimated ultimate recovery (EUR) of the wells drilled there. Even with the decline in oil prices, there is still a significant price differential between oil and gas on an energy-equivalent basis.

Questions:

- (1) Which tight-gas plays and regions in western Canada are best suited to development of a GTL facility?
- (2) Using unconventional gas resources as feedstock, under what conditions would GTL be an economically-sound venture today, particularly for supplying energy to remote communities in northern Canada?
- (3) Can LNG resources in western Canada economically fuel remote communities, compared with other options including diesel, solar, wind and geothermal?
- (4) What factors should be considered for a life-cycle assessment of the environmental impacts and costs for the various options in (3).

THINK  TANK



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