Natural Gas as an Island Power Generation Option

Ziff Energy Group

October 31, 2012

Newfoundland Labrador

Overview

- Ziff Energy Group was engaged to assess the viability of various natural gas supply options for power generation in the Province.
- Natural gas considered in their Report would originate either from the Grand Banks or world-sourced Liquefied Natural Gas (LNG).

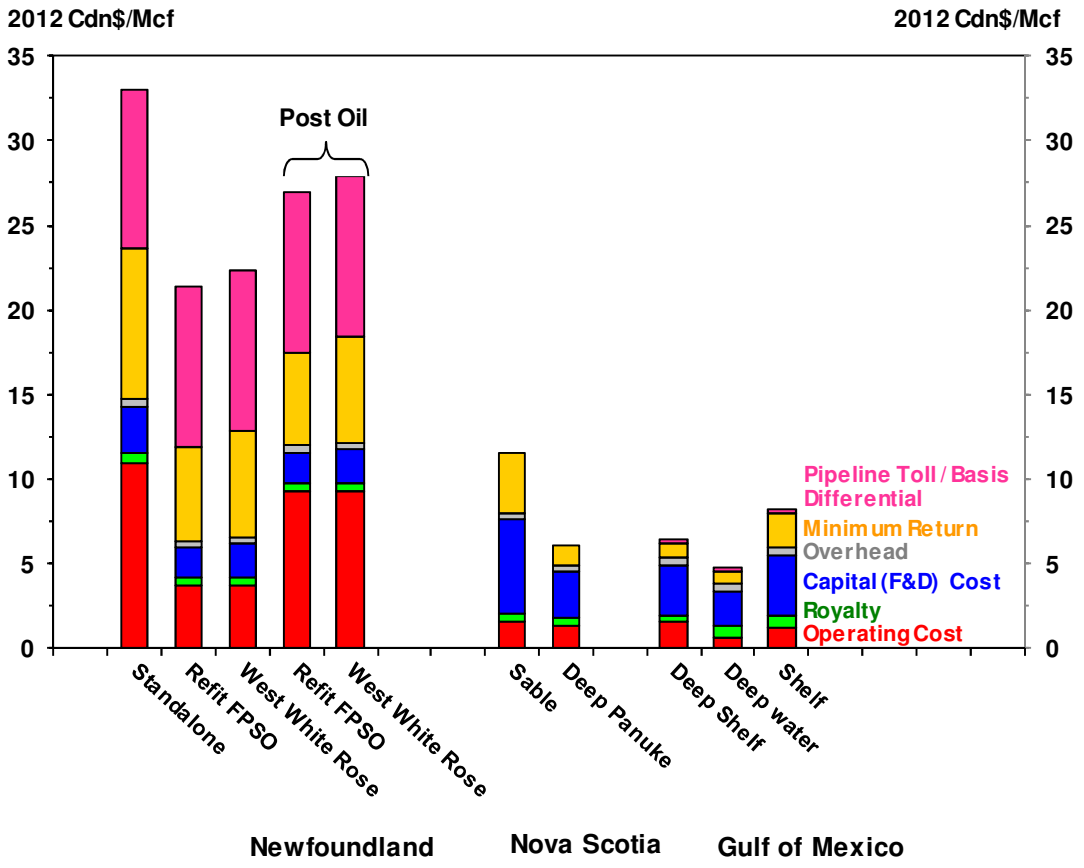
Key Findings - Pipelines

1. Grand Banks natural gas is stranded and not available to flow.
2. Associated Gas produced with oil offshore Newfoundland is used to power oil production systems or is re-injected to enhance oil recovery ("EOR"), and is not available.
3. The Government of NL cannot compel the sale of Grand Banks natural gas to the power generation market, nor mandate a price.

Key Findings - Pipelines

4. Capital cost to develop Grand Banks gas is high and the return is not sufficient to justify the expense.
5. The power market in NL is demonstrably small, with demand spikes in winter months, and very little demand in the summer. This poses a challenge for development.
6. A subsea pipeline is costly and a significant challenge
7. Gas on the Grand Banks would be a standalone gas project. The estimated cost of finding, developing, and bringing natural gas from the Grand Banks to Holyrood would be about C$33/Mcf.

Full Cycle Cost of New Offshore Gas

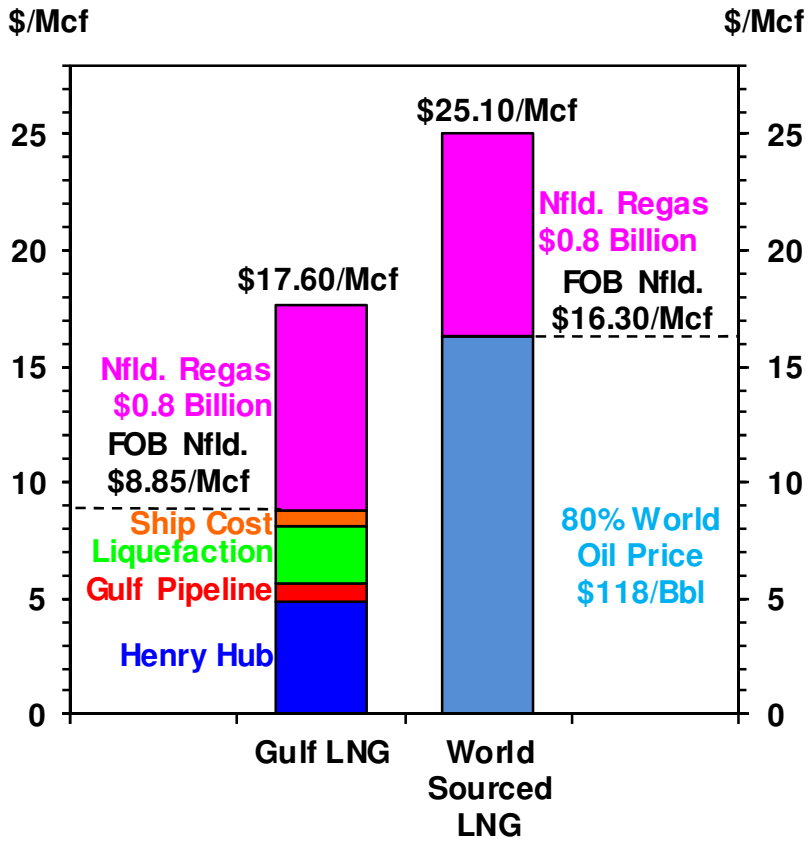


Newfoundland Labrador

Key Findings - LNG

8. The low and variable volumes of gas required to produce power at Holyrood would be a challenging economic barrier to securing long-term firm LNG Supply on world markets.
9. Reliance on world spot LNG markets would bring unacceptable utility supply risk as peak demand periods for LNG spot cargoes coincide with peak requirements at Holyrood during winter months

LNG Supply Cost



Newfoundland Labrador

Presentation by Dr. Bruneau

- Ziff Energy also assessed a presentation given by Dr. Stephen Bruneau on March 28, 2012.
- Dr. Bruneau made a number of assertions and conclusions about natural gas availability and use for electrical generation

Presentation by Dr. Bruneau

1. Dr. Bruneau asserted that natural gas is available for domestic import, however, no plans or efforts have been made to access it.
    - Ziff notes that Husky has studied monetizing gas, and wants to maintain the option to use natural gas for enhanced oil recovery.
    - Husky indicates the likely commercial option for development of gas resources offshore NL involves LNG liquefaction and export to oil-referenced markets.
    - Ziff believes that if the natural gas is not commercially available, there can be no consideration of Grand Banks natural gas when required for Island Generation option

Presentation by Dr. Bruneau

2. Dr. Bruneau concluded that natural gas is being produced at a rate that exceeds NL domestic electrical needs, which could sustain our requirements for a long time.
   - Ziff finds that the small domestic power generation requirements are a barrier to commercial viability as the massive costs of production and pipeline infrastructure would need to be recovered from a very small rate base.
   - This renders the natural gas feed costs, and generated power, uneconomic.

Presentation by Dr. Bruneau

3. Dr. Bruneau stated that Natural Gas reserves and resources on the Grand Banks are in quantities that exceed domestic electrical requirements for the foreseeable future.
    - Ziff agrees that natural gas reserves and resources are physically available in quantities in excess of domestic electrical requirements, but that it is not commercially available and has high costs.

Presentation by Dr. Bruneau

4. Dr. Bruneau asserts that icebergs were considered too risky for Grand Banks pipelines 30 years ago, but today, there is a low risk from icebergs to seabed equipment, flowlines and offshore loading pipelines.
    - Ziff notes that offshore operators have chosen to transport Grand Banks oil via marine shipping rather than pipeline, which have less risks.
    - Ziff also notes that the security of supply and economic and environmental consequences from a pipeline failure required for powering homes and businesses cannot be understated.

Presentation by Dr. Bruneau

5. Dr. Bruneau notes that capital costs are very low relative to the alternatives presently under consideration for domestic electricity supply.
   - Ziff Energy does not agree with Dr. Bruneau's conclusion, and finds the total costs of gas resource development and transmission are punitive given the small domestic electric generation load.

Presentation by Dr. Bruneau

6. Dr. Bruneau makes the following assumption: “For domestic power production NL pays US utility market price for fully processed, pipeline ready and compressed gas at a metering station/pipeline launch point on the platform….”
    - Ziff Energy does not agree with Dr. Bruneau’s simplifying assumption. Grand Banks natural gas is not physically connected to the North American gas grid (nor is Newfoundland).
    - Newfoundland consumers would therefore not pay a North American utility price.