

Renewable Natural Gas:

Understanding the industry value drivers, and public policy alternatives, to foster market development of clean energy in British Columbia

UBC sustainability

Purpose

This report provides an assessment of the potential impacts of further RNG market development in B.C.. This includes reviewing the product value proposition, potential contribution towards Greenhouse Gas (GHG) emission reduction targets, and other socio-economic factors.

The objectives of this report:

1. Enhance awareness of RNG's unique value proposition to sustainable communities
2. Increase energy customers' selection of renewable energy sources, and specifically RNG
3. Better understand RNG's market potential, and learn from global best practices

Why Choose RNG

Among the most prominent reasons to support the market development of RNG are its Environmental, Economic, and Social value propositions.

Disclaimer: Any opinions or errors are the full responsibility of the Author

Environmental Value

RNG creates a **Ripple Effect** of **Energy Efficiency** improvements, **CO₂e Sequestration**, and **Fuel Switching** that accumulates throughout its life-cycle and lessens the environmental impact of human activities.

RNG = Carbon Negative
-53.99kgCO₂e per GJ

Notably, 1GJ of RNG results in a **GHG Reduction** of 53.99kgCO₂e – produced under similar conditions to the proxy supply used in this report.

Economic Value

Analysis reveals unrecognized and significant points of differentiation between the value offerings of RNG, in excess of conventional natural gas.

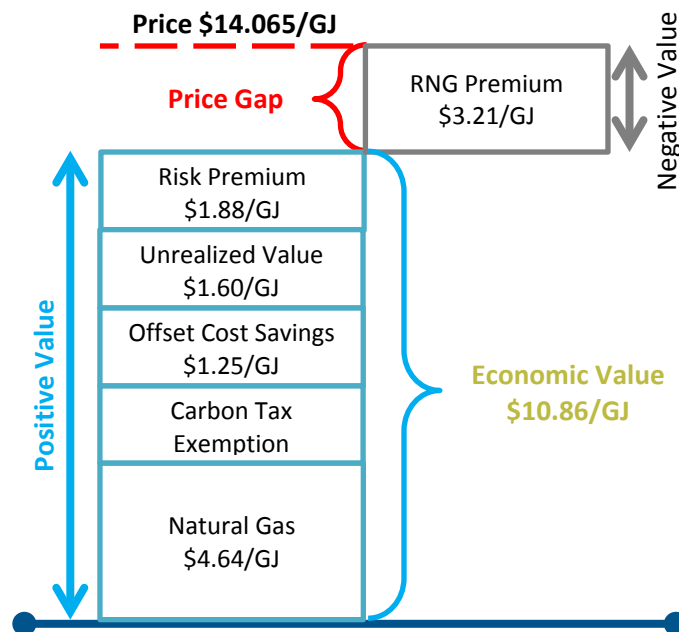
66% of the perceived RNG price premium is accounted for by unrecognized value delivered to customers, and includes **Carbon Tax Exemptions**, **Carbon Offset Savings**, **Unrealized GHG Reductions**, and in **Hedging Price Volatility**.

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The premium can often be further offset or eliminated by **Customer-Specific Cost and Strategic Synergies**.



Social Value

The RNG industry provides many social benefits for the greater public good; including, [Local Economic Development](#), [Sustainable Development](#), and improving [Energy Security](#).

GHG Impact Potential

RNG can play a role towards meeting provincial GHG reduction targets.

Market Potential

RNG's primary market potential has a combined size of 278 PJ/yr. This comprises of an estimated [Utility Distribution](#) market of 125PJ/yr, an [Industrial & Direct Sales](#) market of 150.8PJ/yr, and an [LNG Export Market](#) of 2.05PJ/yr by 2020.

GHG Reduction Scenarios

Under the assumption of an unlimited RNG supply, **Table 0-1** summarizes analysis on the [Magnitude of Alternative Policies](#) towards meeting the province's 2020 GHG reduction targets.

Policy Alternatives

There are many policy instruments to promote the development of the RNG industry, including both [Financial](#) and [Non-Financial](#). Approaches taken by international governments can provide both best practices, and experiential learning.

Table 0-1: Scenario Impact Towards 2020 GHG Targets (As a %)

Market Specific					
RNG %	1%	5%	10%	25%	100%
Utility Distribution	0.65%	3.24%	6.48%	16.20%	64.80%
Industrial & Direct Sales	0.47%	2.33%	4.66%	11.66%	46.65%
Road Transportation & Urban Transit	0.40%	1.98%	3.96%	9.91%	39.65%
Natural Gas Content					
Sales-Based	1.21%	6.04%	12.09%	30.22%	120.88%
LNG Export Market					
Comparable Impact	0.01%	0.03%	0.05%	0.14%	0.27%

Advancing the Industry

FortisBC Recommendations:

1. Prioritize the Learning Curve

Focus must be placed on improving information gathering and improving cost structures for long-term viability.

2. Develop Project Offsets

Develop systems for the sale of carbon negative credits through offset marketers.

3. Value Communications

Build awareness of individual customer social impacts and the secondary product values, to create recurring points of gratification.

Policy Recommendations:

1. Accelerate Returns on B.C.'s Assets by eliminating supply restrictions and managing risk via demand-side measures.

2. Facilitate Realization of Value

RNG program subscribers remove GHG emissions from provincial accounts, and require standards to realize a return on these investments.

3. Support a Culture of Innovation

Support and build capacity for innovations along the supply chain.

Research Recommendations:

To support other recommendations, research is required into [Measurability Standards & Technology, RNG for Transportation: Market-Specific Attractiveness](#) and [Alternative Uses for Biomass and Biogas Feedstock](#).

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