

Landfill Gas Utilization


Life Cycle Greenhouse Gas Analysis

Parks & Environment Committee







June 26, 2019



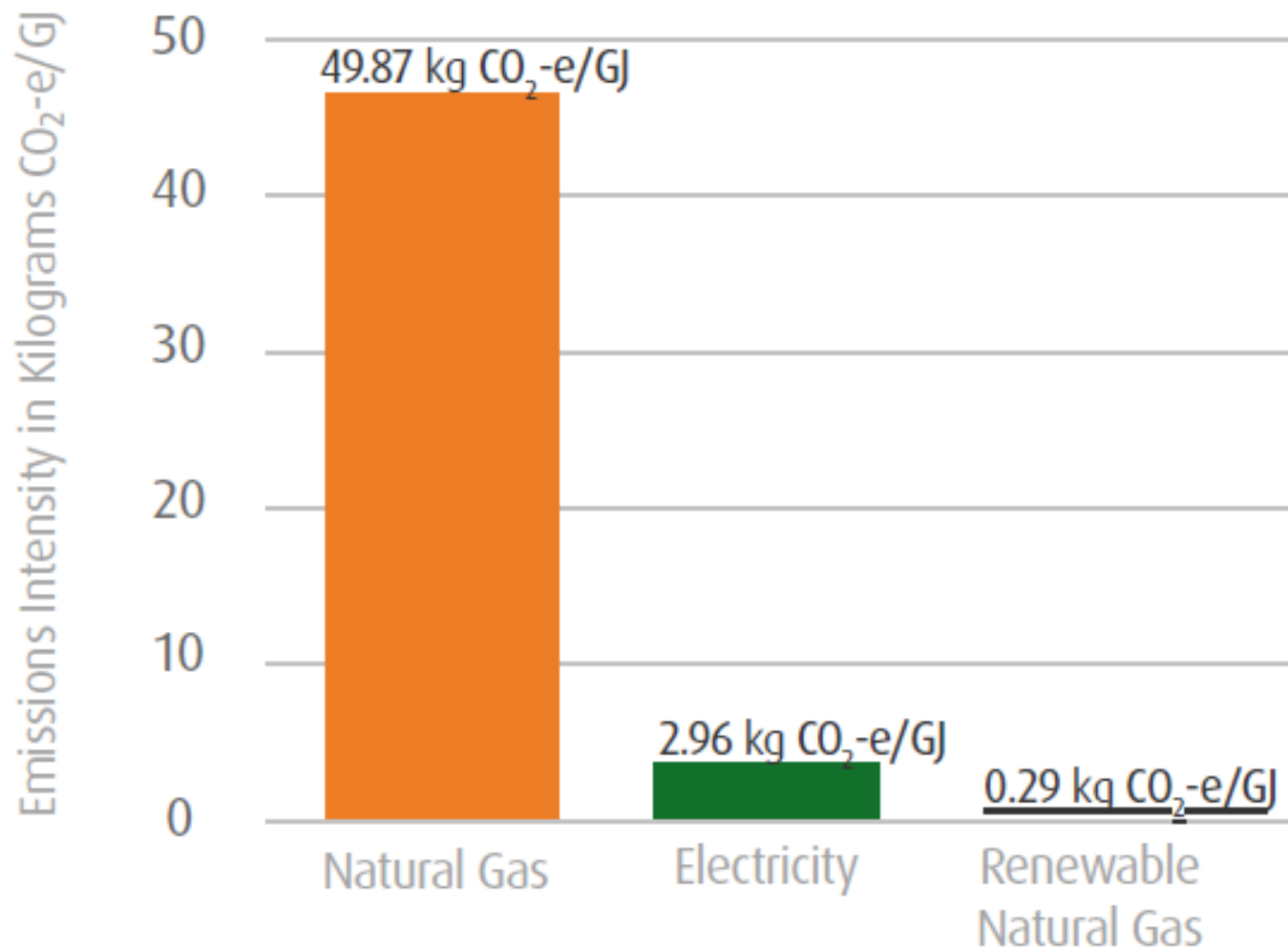
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- Life cycle GHG analysis completed by Stantec Inc. following standards defined by the international standards organization (ISO)
 - Study assumes 200,000 GJ of landfill gas available in either scenario (Green power or RNG)
 - Study considered construction, operation, major rehabilitative maintenance and GHG emissions displaced by adding clean energy to the BC grid
 - Study included construction emissions from expansion of capacity of energy distribution infrastructure, in the RNG scenario
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Life Cycle GHG Analysis- Results

STAGE		GREEN POWER SCENARIO (tonne CO ₂ -e)	RNG SCENARIO (tonne CO ₂ -e)
	Avoided GHG Emissions (25 years)	-5,011	-275,039
	Facility Construction	632	730
	Energy Distribution Infrastructure Construction	-	550
	Operation	1,589	9,936
	Maintenance	1	-
SUM OF THE CONSTRUCTION, OPERATION, MAINTENANCE AND AVOIDED EMISSIONS:			
	TOTAL LIFECYCLE GHG EMISSIONS (25 years)	-2,789	-263,822

GHG Emissions Intensity of BC Energy Types



Net Energy Production: Electricity vs. RNG



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	ELECTRICITY	RENEWABLE NATURAL GAS
Landfill Gas Available for Energy Production	200,000 GJ	200,000 GJ
Net Energy Available After Maintenance & Planned Downtime	192,000 GJ	192,000 GJ
Energy Utilization Efficiency: Electricity Generation	35%	N/A
Net Energy Available To Be Put Into the Grid/Pipeline	67,000 GJ	192,000 GJ

All numbers are approximate

- No expansion to electricity transmission network is required to expand Hartland power production
 - FortisBC would need to expand the capacity of its energy distribution infrastructure over a 7.4 km stretch, to accommodate the volumes of gas from this project and to tie into the Hartland landfill
 - As there is already residential gas supply in the area, this project is not expected to increase residential natural gas demand
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