

## Briefing note on RNG in British Columbia

June 2022

Over the past year, representatives from utility company FortisBC have been making presentations on its proposed Renewable Natural Gas (RNG) tariff to municipalities across BC, seeking to gain support for its [RNG tariff application](#) currently in front of the BC Utilities Commission. This briefing aims to unpack some of the key claims being made by FortisBC representatives to municipal councils across the province. After examining the data behind these claims, it concludes that there are serious questions about the availability, affordability, climate impact, and health risks of RNG.

### **Claim: RNG is plentiful – Fortis can supply every single new home in BC with RNG**

*Fact: There is a very limited supply of RNG, and at most it is expected to produce an amount equivalent to 5% of BC's current gas use. When Fortis spokespeople claim that we can meet the entire province's gas needs from renewable gas, they are including and conflating very different fuels.*

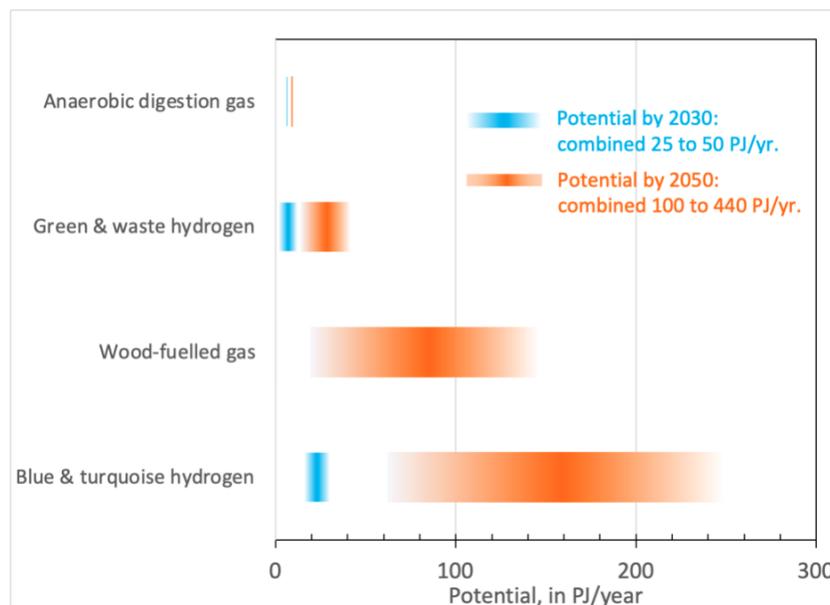
RNG (also known as biomethane) is created by processing biogas captured from landfills, wastewater treatment plants, green waste and agricultural waste. Currently about 1% of BC's gas supply is renewable gas. Fortis has current contracts that could increase this proportion to 10% renewable gas in the next 2 years, but this includes a significant amount coming from outside BC – essentially relying on “carbon credits” from Ontario, Alberta and from US-based companies like [Archaea Energy](#). These jurisdictions are all going to need RNG for their own high priority local purposes, so if Fortis is counting on RNG purchases from other jurisdictions to meet future demand for gas in BC, other provinces and states are going to have a harder time decarbonizing as a result.

Fortis spokespeople are touting a [study that came out in early 2022](#) jointly commissioned by Fortis, the BC government, and the BC Bioenergy Network that says we can produce over 440 PetaJoules (PJ) per year of “renewable and low carbon gas” by 2050, compared to our current province-wide gas consumption of 230 PJ/year. **What they don't mention is that most of the future capacity hyped up in this study would come from fossil energy**, namely blue and turquoise hydrogen, and another quarter would come from woody biomass (aka logging and burning forests for fuel). **Only a very small fraction would actually be RNG** - the study says “traditional RNG from anaerobic digestion or biogas has lower potential (~10 petajoules by 2050). Other pathways will be crucial to achieve substantial decarbonization of the natural gas system.”

**Table 1 Pathways for low carbon gas considered in this report**

Organic Residue* (Anaerobic treatment)	Woody Biomass (Thermochemical pathways)	Non-Biomass Resources (Electrolysis and SMR)
<u>Agricultural RNG:</u> Digestion and gas conditioning using agricultural waste.	<u>Syngas:</u> Wood gasification to produce a gas used in lime kilns of kraft pulp mills.	<u>Green hydrogen:</u> Electrolytic production of hydrogen from water and clean electricity.
<u>Municipal RNG:</u> Digestion of source-separated organics (green bin) and industrial food waste.	<u>Hydrogen from syngas:</u> Syngas processed with water-shift reaction.	<u>Blue hydrogen:</u> Steam methane reforming of fossil methane with CO <sub>2</sub> capture and storage.
<u>RNG from wastewater treatment plants:</u> Digestion of water treatment sludge to produce RNG.	<u>Methane from syngas:</u> Syngas processed with water-shift and methanation step.	<u>Turquoise hydrogen:</u> 'Pyrolysis' of fossil methane, producing carbon black and hydrogen.
<u>Landfill gas:</u> Gas captured at landfills and conditioned to produce RNG.	<u>Lignin as a replacement for natural gas in the pulp industry:</u> Lignin extracted from black liquor to produce a dry lignin fuel.	<u>Waste hydrogen:</u> Hydrogen produced as a by-product in industrial processes.

\* In reality, some of these feedstock types can be combined at any given plant; a strict separation is not possible but is used in the report to derive estimates for the potential of each waste type



**Figure 1 Minimum and Maximum Renewable and Low-Carbon Gas Production Scenarios for B.C. for 2030 and for 2050**

[In this April 2022 presentation to the Nanaimo City Council](#), Fortis spokesperson Jason Wolfe (at 1:57) misrepresents this study, claiming that it projects 400 petajoules of “renewable energy capacity from wood waste, from landfills, from wastewater treatment plants, from green waste...so more than 100% of the gas used in British Columbia could be renewable natural gas made in British Columbia”, when the study clearly states that at most 2.2% of future “renewable and low carbon gas” capacity would be RNG (consistent with findings from other jurisdictions like Washington state, [where it was concluded](#) that at most 3-5% of current gas production could come from RNG).

[In this FAO section of the Fortis website](#), the writing seamlessly transitions from “what is RNG” to “renewable gases” to “renewable and low carbon gas supply”, in what might be seen as an effort to conflate these very different fuel sources and confuse customers and the public.

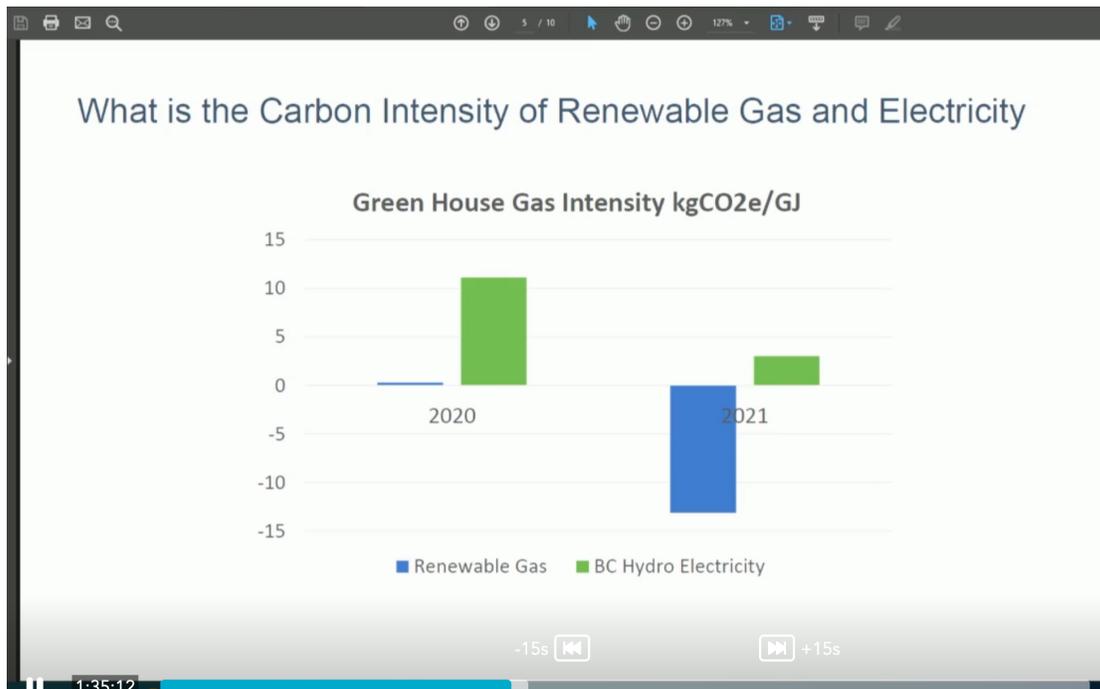
Because RNG is created by processing biogas captured from landfills, wastewater treatment plants, green waste and agricultural waste, it only exists in limited quantities. By contrast, Fortis uses the term ‘renewable gas’ to also include woody biomass (aka cutting down trees to burn for fuel) and green hydrogen (which actually takes more electricity generation to produce and burn for heat than heating buildings directly with heat pumps, [according to a recent brief from the Rocky Mountain Institute](#)), and the term ‘renewable and low carbon gases’ to further include fossil fuel-derived blue hydrogen. In addition to the fact that blue hydrogen is derived from fossil fuels, it cannot be substituted 1:1 in the existing gas pipe network, so very expensive upgrades to the existing pipe network would be required to transport hydrogen this way.

Since RNG is so scarce, many argue that it should be reserved for sectors that are hardest to electrify, like heavy industry. According to a [Sightline article](#), “studies by [Energy Transitions Commission](#) and [Rocky Mountain Institute](#) both suggest that using RNG for residential or commercial purposes would be misallocating a “precious” resource because these sectors can be transitioned to all-electric clean power relatively easily.”

### **Claim: RNG is ‘climate positive’ and generates negative carbon emissions**

*Fact: Only a small proportion of RNG feedstocks are truly climate neutral, and their availability is expected to decline over time.*

Fortis spokesperson Jason Wolfe shared the below diagram in a recent presentation to Nanaimo City Council, as a way of illustrating that renewable gas is actually *better* for the climate than electricity because it reduces methane emissions from landfills and wastewater treatment plants:



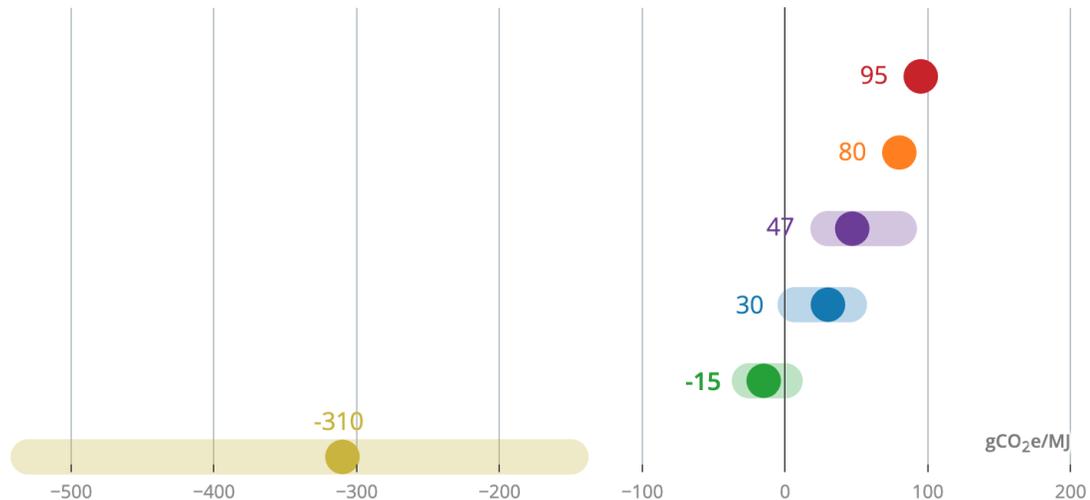
This graph is misleading. First of all, most of what Fortis is proposing to bring online into the gas system isn't actually RNG (see section above) so this chart is only relevant for a very small percentage of its proposed "renewable and low carbon gas" production. Secondly, even with RNG, the climate benefits are not as clear-cut as this presentation would imply.

**Compared to true zero carbon energy sources (wind and solar), only some RNG feedstocks are truly carbon neutral or negative** – just animal manure and food and green waste ([according to WRI](#)), while landfill and wastewater treatment sources, while less intensive than conventional fossil gas, still create carbon pollution. **In addition, commercializing RNG runs the risk of incentivizing practices that the provincial and federal governments have committed to reduce**, including industrial farming ([pasture-raised livestock produce less methane](#) than industrial operations) and landfill waste (which we can reduce by ending single-use consumption and increasing recycling). Planning for an increase in RNG is, in effect, betting on these environmental commitments to fail.

## Carbon intensity of renewable natural gas feedstocks

Carbon intensity measured in grams of carbon dioxide equivalents per megajoule (gCO<sub>2</sub>e/MJ).

■ Diesel 
 ■ Conventional natural gas 
 ■ RNG - Landfill 
 ■ RNG - Wastewater sludge 
 ■ RNG - Food and green waste 
 ■ RNG - Animal manure



Source: World Resources Institute/California Air Resources Board

CBC News

RNG is chemically identical to fossil gas, meaning that it still leaks methane, a [highly potent greenhouse gas](#) with 87 times the warming effect of CO<sub>2</sub>. [According to one peer-reviewed study](#), biogas production leaks up to 15% of its methane and, according to [a 2022 report from The Atmospheric Fund](#), “fugitive methane emissions during local distribution remain identical to those from natural gas”. [A recent study in the US](#) found that gas stoves often leak methane even when turned off.

**Further resources:** [This article in The Conversation by scientist Emily Grubert](#) and [this piece from the Sightlight Institute](#) are both excellent summaries of all the reasons why a large expansion of RNG is not a good climate solution, and [this CBC article](#) references a lot of the sources mentioned above.

### Claim: RNG will displace natural gas / fossil gas in our system

*Fact: Fortis is projecting increased gas demand, and is hoping to use an RNG tariff to increase its overall number of gas hookups.*

Fortis is proposing an RNG tariff for all new buildings in BC as a way to continue to increase its number of gas hookups and customers. What this means is that it's



proposing displacing future fossil gas growth, which is very different from displacing existing gas consumption. In addition, there simply won't be enough RNG for all new homes and commercial buildings in BC, so most of this future growth would actually be supplied by fossil gas hydrogen and logging and burning forests for woody biomass.

In his presentation to Nanaimo City Council, Fortis spokesperson Jason Wolfe claimed that RNG is carbon neutral or carbon negative, so all new buildings with gas or electricity will automatically be "carbon neutral" if the Fortis BC Utilities Commission application goes forward. As the above sections show, this claim is misleading in two big ways: first, it implies that there's enough RNG to supply all new homes in BC (there isn't) and secondly, it implies that all RNG is carbon neutral or negative (it isn't).

Across BC, around 11% of our total greenhouse gas emissions come from buildings – and in cities, this number jumps to over 50%. Gas furnaces and boilers are a huge part of these climate emissions, so the best way to displace fossil gas is to stop adding new hookups immediately and start transitioning homes off gas to electric heating and hot water.

**Claim: If all buildings in BC switched to electric heating and hot water, more mega-dams the size of Site C would be needed to keep up with demand**

*Fact: Invoking the controversial Site C project is a great way to shut down conversation about electrification, but this claim just isn't accurate.*

It's true that in order to switch buildings off gas, we'll need to ramp up electricity production, storage and transmission. However, this is eminently doable. Several recent studies, including [The Big Switch report from the Climate Institute](#) and [the David Suzuki Foundation's recent modelling study](#), have found that by increasing solar and wind capacity, building a smarter and more efficient grid, making use of existing hydro electricity capacity, and focusing on efficiency improvements across all sectors, we can meet future needs without any new large-scale hydro projects. BC Hydro currently has a surplus of power and expects to have more than enough until 2030, and its [20-year Integrated Resource Plan](#) is forecasting and preparing for scenarios with significantly increased electricity demand. BC Hydro's scenarios, including for accelerated electrification of buildings and vehicles, indicate that future demand can be met without adding any new mega-projects like Site C.

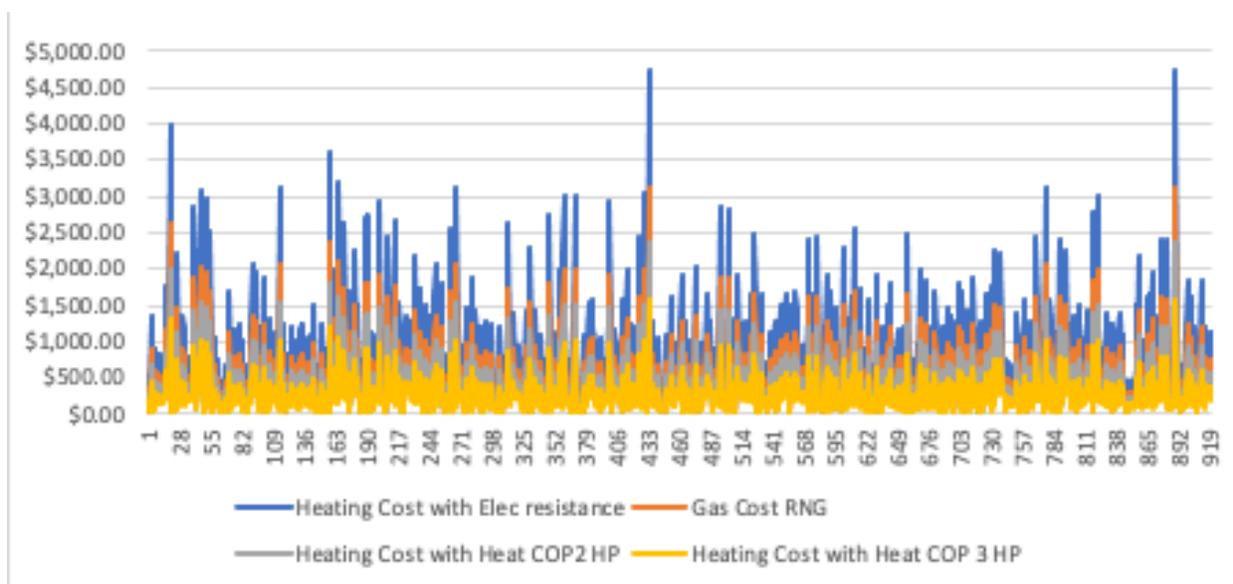
## Claim: RNG is cost-competitive compared to electrification

*Fact: Data from across the province shows that vastly more efficient heat pumps make monthly utility costs for heating lower than with gas furnaces, with the added bonus of contributing far less to climate change and providing cooling in the summer.*

Although electricity rates are currently higher than gas rates in BC, heat pumps' greater efficiency more than offsets this rate differential. In addition, gas prices are much more volatile than electricity – and [gas prices are currently at a 10 year high](#).

RNG costs anywhere from 2 to 10 times more than fossil gas ([source](#)), **making RNG more expensive than electric heat pumps by a considerable margin**. Fortis' proposal to charge the same RNG tariff for new hookups as existing customers pay for traditional fossil gas is, in effect, burying the actual high expense of producing renewable gas by spreading it across all ratepayers. If the RNG proposal in front of the BC Utilities Commission is approved, all of FortisBC's 900,000+ residential ratepayers will pay for the increased costs of boosting renewable gas supply.

As an example, raw data of home heating costs for nearly 1,000 BC homes modeled using different heating methods found that heating with RNG is consistently more expensive than heating with an electric heat pump:



## **Claim: RNG holds no health risks and is a benign fuel**

*Fact: The chemical composition of RNG (biomethane) is identical to fossil methane, and it poses all the same health risks as traditional fossil gas. Gas appliances, in particular stoves, pose well-documented risks to indoor air quality.*

[This UCLA study](#) done in California found that exhaust from gas appliances produces carbon monoxide and nitrogen dioxide (NO<sub>2</sub>) exposures that exceed national and California standards in 90% of the homes modeled. [Numerous studies](#) have confirmed significantly higher rates of childhood asthma and other respiratory illness in children who have gas stoves in their homes. And exposure to NO<sub>2</sub> is even being linked to more adverse health outcomes from Covid. The evidence is strong enough that in early 2020, the New England Journal of Medicine [published an editorial authored by a former director at the CDC's National Center for Environmental Health](#) recommending that new gas appliances be removed from the market altogether.

In addition, the impact from gas appliances is worse in smaller households, especially smaller apartments, disproportionately harming low-income people. Responding to the UCLA study, [the Sierra Club said](#) “the air quality inside nearly every apartment was so bad that it would be illegal if measured outside.”

## **So why is RNG being considered by the province of BC and the BC Utilities Commission as a climate-friendly fuel of the future?**

One reason might be Fortis' heavy investment in lobbying, including its participation in several gas industry lobby groups coordinating efforts to block the electrification movement. As a member of the North American Consortium to Combat Electrification, Fortis is actively working to “fight the electrification / anti natural gas movement” ([as leaked documents reveal here](#) and [here](#) – more in [Seth Klein's National Observer article](#)). Fortis is also part of a new [Canadian industry effort](#) to slow building electrification by promoting dual gas+electric energy systems.

**Instead, local governments can pursue genuinely low-carbon pathways by incentivizing deep electrification of both new and existing buildings**, paired with measures that consider affordability, equity and cooling for future extreme heat events.

*For examples of municipal buildings code updates that prioritize low-carbon development without allowing for a gas network expansion, or for support in passing these policies in your own community, visit [Stand.earth's SAFE Cities website](#) or contact [liz@stand.earth](mailto:liz@stand.earth).*