

What is RNG?

Renewable gas is natural gas (biomethane) produced from existing waste streams and a variety of renewable and sustainable biomass sources, including animal waste (e.g. Cow manure from dairy farms), landfills, sewage treatment plants, crop residuals and food waste. It is composed of primarily methane, just like geologic natural gas.

As organic matter, or biomass, breaks down in the absence of oxygen; the bacteria produces methane and carbon dioxide (CO₂) as a natural byproduct. The raw biogas, which contains methane and other compounds, can be concentrated in one location and captured. Once collected, it can be purified (or upgraded) into biomethane that meets the quality standards of pipeline systems.

Upgrading to Biogas

The process of upgrading may vary from project to project, but the goal is to ensure the gas introduced into the system meets the same quality standards as natural gas. The process leaves behind primarily methane and small quantities of other gasses. The first step is to remove contaminant gasses through a careful gas cleaning process that leaves only CO₂. The CO₂, which lowers the heating value of the gas, is removed using well-proven gas processing technology employed around the world.

Once the gas is clean, only methane remains along with a small amount of nitrogen, making it almost impossible to distinguish from conventional natural gas. Purified biogas free from undesirable contaminants is called biomethane – also known as renewable natural gas.

Sure, it's clean, but is it safe?

In co-operation with other major gas utilities, NWGA member, FortisBC undertook a study to determine if biomethane was a safe alternative to natural gas. Multiple gas sources were examined in numerous locations around North America and compared with conventional natural gas. Study results showed that upgraded biomethane is interchangeable with natural gas. In some cases, biomethane was purer (contained fewer contaminants) than conventional natural gas, meaning customers won't see any difference in the quality of gas provided. You can rest easy that it meets the same safety standards as conventional natural gas. It is carbon neutral, extremely versatile and fully compatible with the North American pipeline infrastructure.



What about the environment?

The creation of biogas does not deplete the earth's non-renewable resources, in fact, it captures and uses biogases from decomposing organic wastes that would otherwise go directly into the atmosphere and facilitates a closed-loop carbon process. In other words, we can turn garbage, sewage, animal and other waste products into clean, useful energy.

What are NWGA members doing with RNG?

NWGA members are currently using or considering the use of renewable natural gas. Here are a few examples:

- **FortisBC:** Four local supply projects (two farm and two landfill projects) are currently in operation, with two more set to come online in the next two years. Over 7,800 voluntary residential and commercial customers participate in the RNG program, each designating between 5-100% of their conventional natural gas as RNG. Cumulative demand for RNG since the program began in 2011 has resulted in a reduction of over 30,000 tons of GHG emissions. For more information, go to FortisBC's website at <https://www.fortisbc.com/NaturalGas/RenewableNaturalGas>.

- **NW Natural:** In April 2017, NW Natural and the City of Portland announced a partnership, where NW Natural will recover and clean biogas from the Columbia Boulevard Wastewater Treatment Plant and inject it into their distribution system. This project will also include a natural gas fueling station. According the City of Portland, this will be the City's single largest climate action project. It will cut greenhouse gas emissions by 21,000 tons annually, generate upwards of \$3 million in revenue a year for the City, and replace 1.34 million gallons of dirty diesel fuel with clean renewable natural gas--enough to run 154 garbage trucks for an entire year. <https://www.nwnatural.com/AboutNWNatural/EnvironmentalStewardship/RNG/>