

Thorold Peaking Project – Renewable Natural Gas Brief

What is renewable natural gas (RNG) and where does it come from?

RNG is a carbon-neutral fuel captured and refined from human-generated biogas that is already present in the environment¹. Biogas used in RNG production comes from various sources, including livestock waste, food production waste and wastewater treatment facilities. The decomposition of these organic waste streams produces methane that would otherwise be released into the atmosphere. This methane/biogas is captured and processed into pipeline-quality RNG that is fully interchangeable with conventional natural gas. RNG can then be injected into existing natural gas distribution pipelines for efficient and safe transportation to where it is needed.

Why do we care about methane, carbon dioxide and other “greenhouse” gases (GHGs)?

GHGs are the main driver of the greenhouse effect and human-induced climate change. When dispersed into the atmosphere, GHGs absorb energy, preventing heat from escaping into space. The impact of a GHG differs by how much energy it absorbs and how long it takes to break down. Methane for instance has a global warming potential greater than 25 times that of carbon dioxide².

Considering the impact of GHGs, RNG has two key benefits: 1) it is created from the capture of methane that would otherwise be released into the atmosphere; and 2) its combustion for electricity, or other purposes, adds utility to this captured energy, while also converting methane to carbon dioxide, a less potent GHG. The use of RNG also offsets the extraction of conventional natural gas, therefore avoiding the introduction of a new carbon source into the atmosphere.

How will Northland and the Thorold Peaking Project use RNG for the betterment of Ontario?

Northland will purchase and inject RNG into Enbridge’s distribution network at volumes identical to, or greater than, the amount of conventional natural gas consumed by the Thorold Peaking Project. The premise is that a consumer that injects RNG into a natural gas distribution network need not be the one to combust those exact RNG molecules, nor combust those molecules at the same time they are injected, to have the same environmental impact. The important point is to displace conventional natural gas and avoid the incremental emissions and costs associated with RNG transport to a facility for direct combustion. To ensure Ontario is carbon-neutral and credited with GHG emissions reductions, the RNG and its source material will come from Ontario. Initial discussions with Ontario RNG producers and marketers confirm that 2 to 10 times the Thorold Peaking Project’s annual RNG requirement will come online in 2023 and 2024 alone. Going forward, the hope is that Northland’s model will be recognized and adopted, spurring more RNG projects in Ontario, and with a long-term vision of RNG further supporting the electricity system as well as other applications.

¹<https://www.enbridgegas.com/sustainability/clean-heating/renewable-natural-gas>

²<https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>