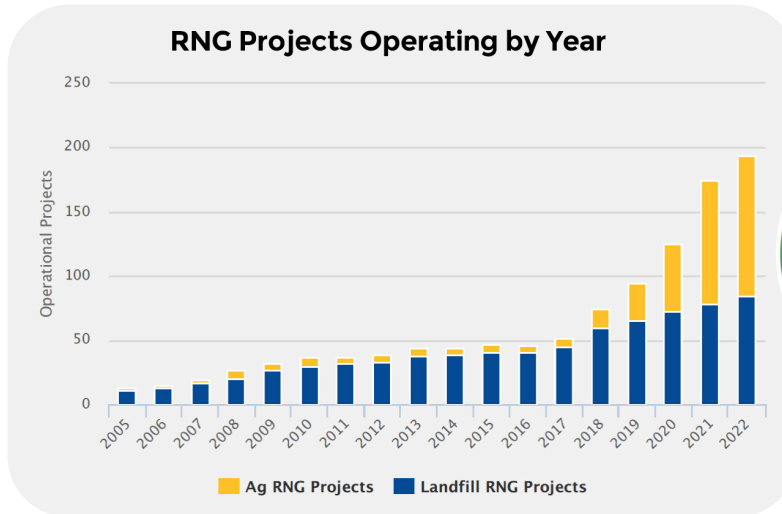


# Renewable Natural Gas (RNG)

## Renewable natural gas

is a pipeline-quality gas that is fully interchangeable with conventional natural gas.<sup>1</sup> The use of RNG as a transportation fuel, an industrial fuel, and a fuel in local gas utility systems is rapidly gaining favorability as a decarbonized energy source (Figure 1).

Figure 1:



Source: Renewable Natural Gas | US EPA



**Renewable natural gas can be derived from various feedstock sources** such as landfill gas, wastewater, food waste, animal manure, and agricultural residues. There are two methods for processing feedstocks into RNG. Anaerobic digestion is used for animal manure, food waste, landfill gas (LFG) and water resource recovery facilities (WRRF). Thermal gasification is used for agricultural residue, energy crops, forestry and forest product residue, and municipal solid waste (MSW). Anaerobic digestion processes exist today, while commercial-scale thermal gasification processes are still under development. See Figure 2 & 3.

Figure 2:

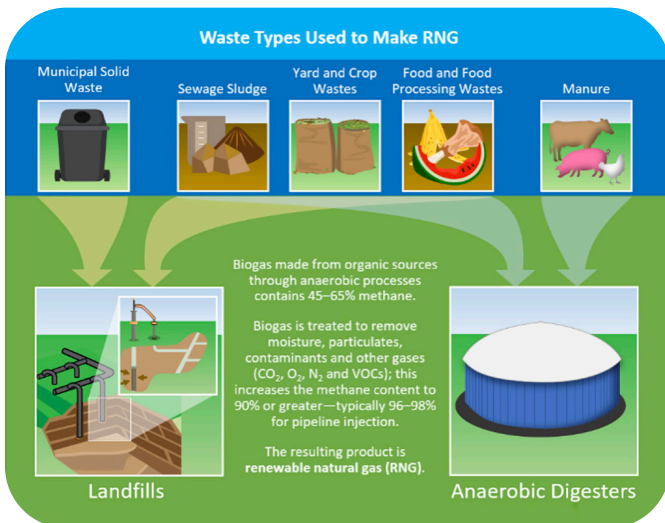
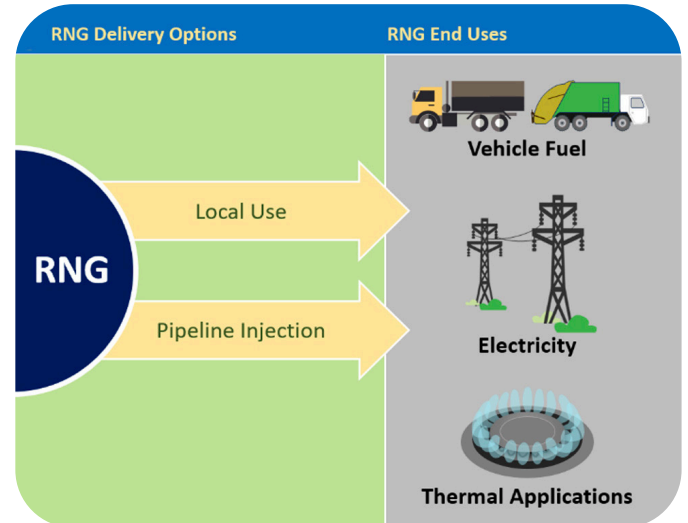


Figure 3:



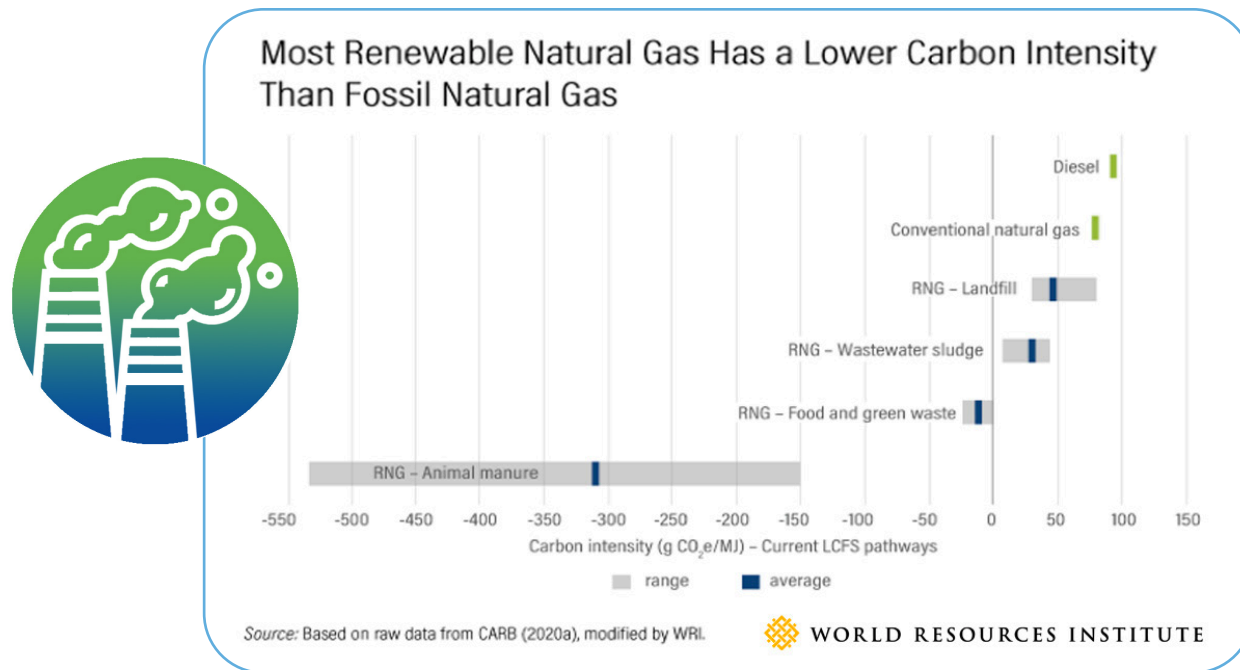
Source: Renewable Natural Gas | US EPA

<sup>1</sup> Alternative Fuels Data Center: Renewable Natural Gas Production (energy.gov)

## Why is RNG carbon neutral, or in some cases carbon negative?

Renewable natural gas is largely considered to be carbon neutral, or in some cases even carbon negative. This is based on the fuels average rate of emissions per relevant unit of energy expended. RNG may often have a net negative carbon intensity because the emissions associated with the methane capture outweigh emissions from production, distribution, and combustion.<sup>2</sup> See Figure 4.

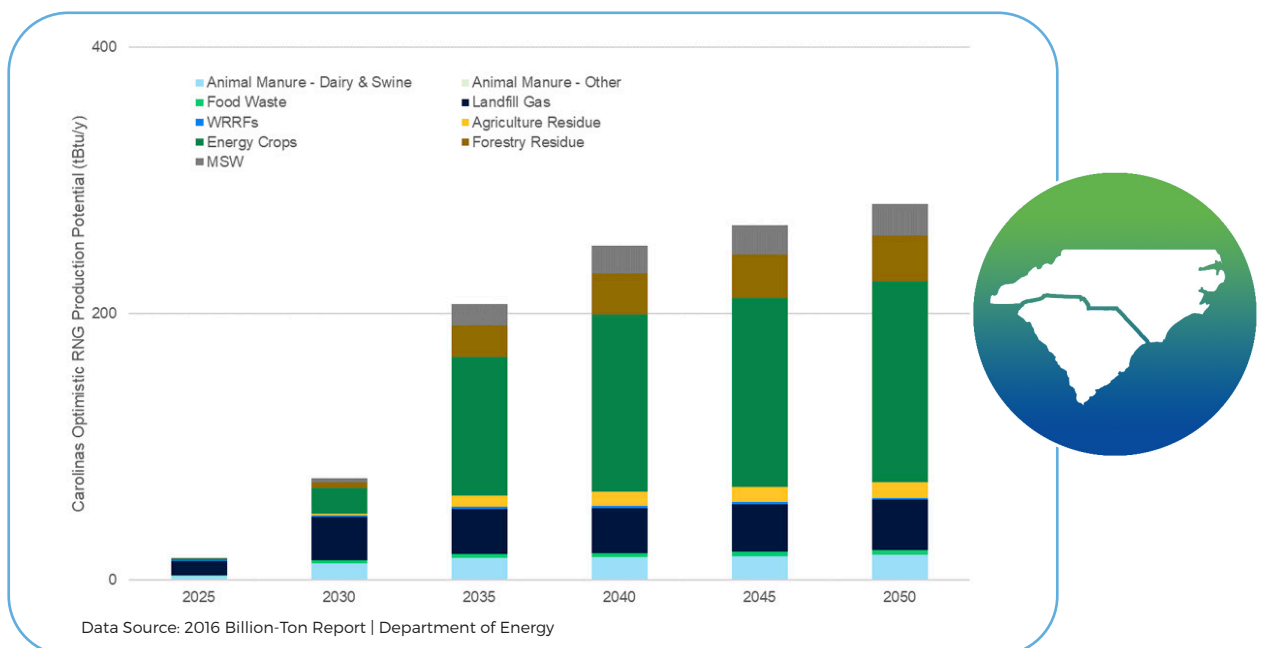
Figure 4:



## RNG Supply

The optimistic RNG supply scenario for the Carolinas includes a variety of feedstocks and is subject to future commercialization of some sources such as energy crops (see Figure 5).

Figure 5:



<sup>2</sup> "Renewable Natural Gas as a Climate Strategy: Guidance for State Policymakers" WRI, T. Cyr, J. Feldman, and R. Gasper December 2020 renewable-natural-gas-climate-strategy.pdf (wri.org)