



# Renewable Natural Gas

An Organic Energy Solution

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# LEADERSHIP



✓ **Developers**

✓ **Utilities / Pipeline**

✓ **Technology**

✓ **Marketers**



# GENERAL



✓ Finance    ✓ Consultants / Law Firms    ✓ Fueling    ✓ EPC    ✓ Labor



# Methane Problem

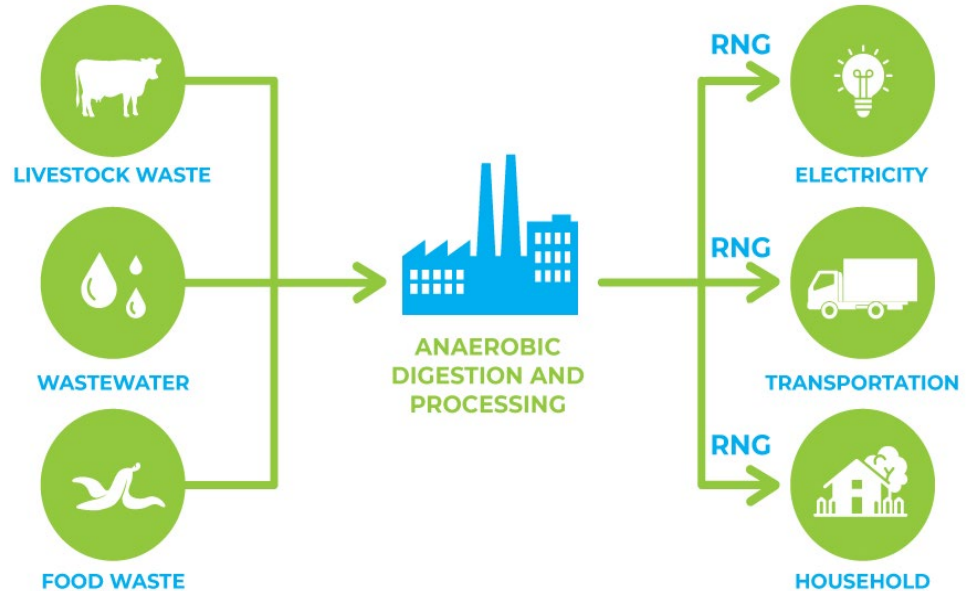
- CH<sub>4</sub> is a short-lived climate pollutant that is 80x more potent than CO<sub>2</sub> on a 20-year scale.
- Second largest driver of climate change.
- Emissions must be reduced by 45% by 2030 relative to projected levels to meet the Paris Agreement 1.5°C target (~35-40% relative to current emissions).

## RNG Is Part of the Solution To Waste Growth



# What is RNG?

- Drop in substitute for conventional natural gas
- Carbon-neutral to carbon-negative
- Biogenic
- RNG-to-renewable hydrogen
- Cost effective form of methane abatement





AstraZeneca



SUSTAINABLE SERVICES

## UPS continues to build on renewable natural gas momentum



PRESS RELEASES

AUGUST 12, 2020

### Anheuser-Busch Transitioning Dedicated Fleet To Renewable Natural Gas As Part Of Ongoing Leadership In Sustainable Logistics

## *AstraZeneca announces innovative partnership with Vanguard Renewables to decarbonize its United States sites*



< Media

Canadian-owned Irving Oil selects Anaergia Inc. as a supplier of carbon-negative renewable natural gas for its operations, including the Saint John refinery

# RNG Volume by Feedstock



Food Waste/SSO

5%



Wastewater

4%



Ag Waste

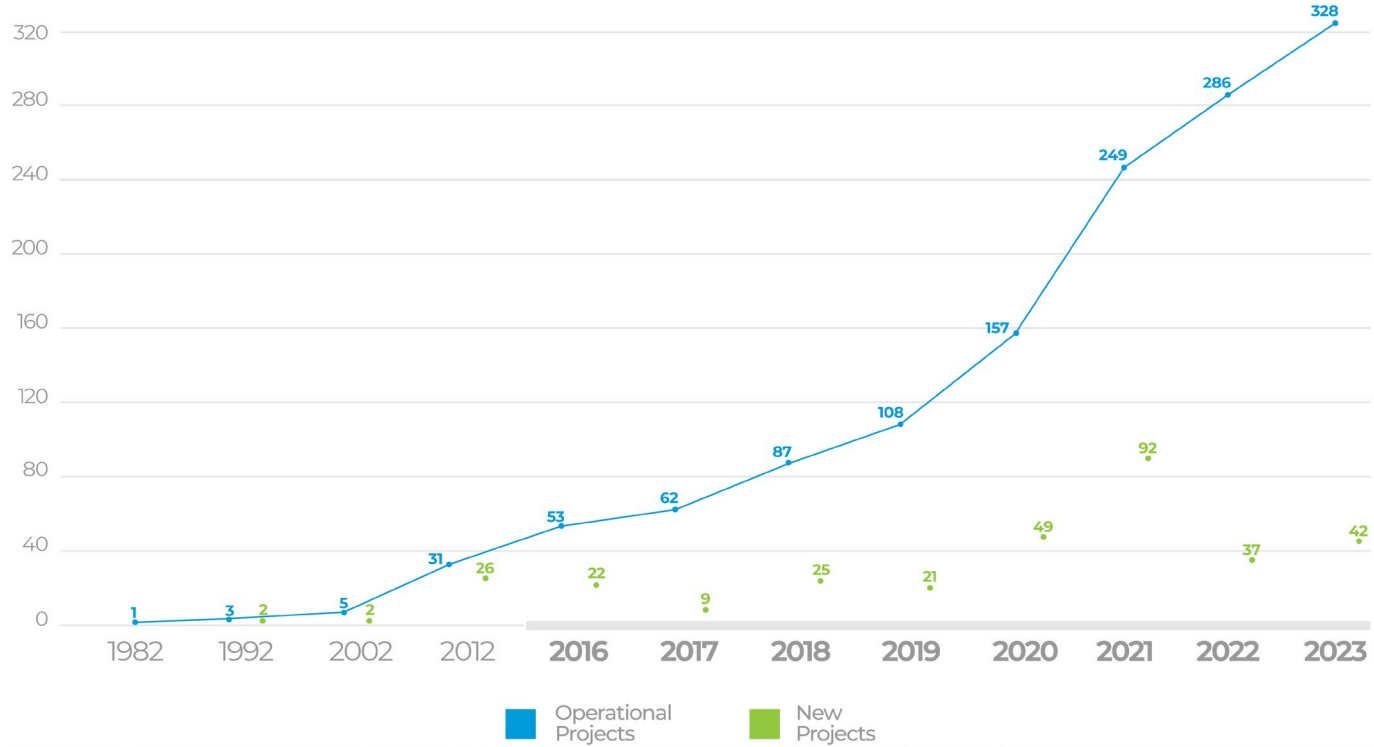
24%



MSW

67%

# RNG Facilities are Growing in North America







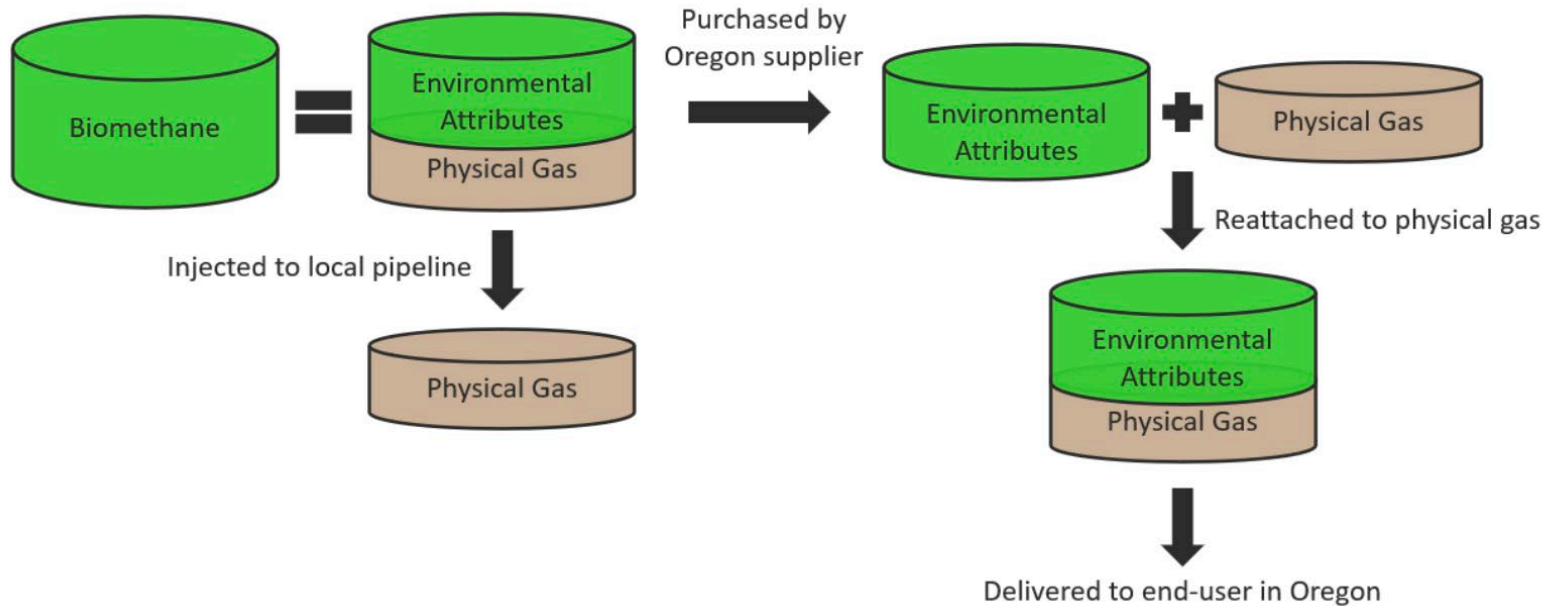
# Key Policies

- Voluntary RNG programs
- Stronger carbon pricing programs (e.g. Cap-and-Trade)
- Renewable Gas Standards (RGS) and Clean Heat Standards (CHS)
- Carbon contracts for difference

## Key features of those programs

- Guarantee of origin system / market-based instruments
- Well-established carbon accounting principles (i.e. biogenic CO<sub>2</sub> emissions reported separately and counted as neutral)

# RNG Trading – Guarantee of Origins



Source: Oregon Department of Environmental Quality, Climate 2023 Rulemaking Brief



# RNG in Michigan

- 4<sup>th</sup> in North America in total number of projects.
- Shifting from landfill gas (LFG) to dairy RNG.
- Used by some utilities to meet renewable energy obligations under the Renewable Energy Standard (RES).
- Will count towards utility clean energy obligations under the Clean Energy Standard (CES) post-2040.
- Follows national trend of shifting from LFG to dairy RNG feedstocks.
- Feature of Governor Whitmer's MI Healthy Climate Plan.



# RNG in Michigan

## Opportunities

- Development of a Clean Fuel Standard.
  - Regional opportunities.
- Streamlining permitting for anaerobic digesters.
- Feedstocks available for continued project development.

## Barriers

- Cost of pipeline injection/interconnection.
- Prohibitive regulatory environment.
- Lack of regional markets.

# Evolving Role of Renewable Gas



## Near-Term: Reduce Methane Emissions

- Build RNG facilities immediately to reduce methane from organic waste streams
- Adopt Clean Fuel Standards, Renewable Gas Standards and/or Clean Heat Standards to incentivize project development and begin to decarbonize the gas system

## Mid-Term: Begin to Prioritize RNG Use in Hard-to-Electrify Sectors

- RNG facilities that are pipeline injected offer a flexible resource which can be sent to sectors that most need it over time
- Proximity to RNG supply becomes a key consideration as RNG comprises larger share of gas supply

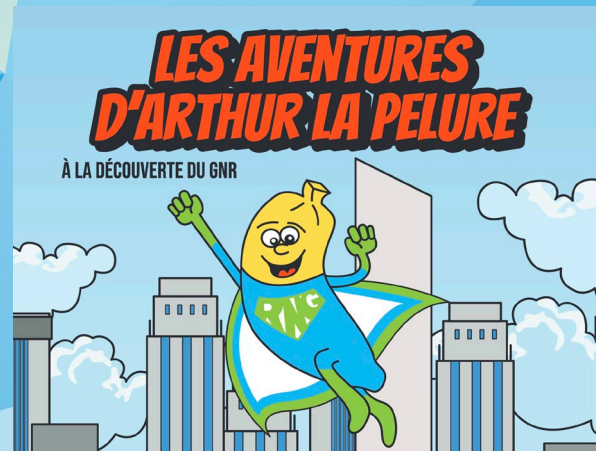
## Long-Term: Manage Transition to H2 with CCUS

- When hydrogen transport infrastructure develops, consider transitioning bio feedstocks to the hydrogen molecule as the energy carrier (especially for non-AD feedstocks)
- Couple H2 production with carbon capture, utilization and storage to achieve carbon-negative outcomes



# Thank you

Check out Pete the Peel in FR:



Available at  
<https://www.rngcoalition.com/rng-kids>

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