

# U.S. Renewable Natural Gas Opportunity

September 9, 2016

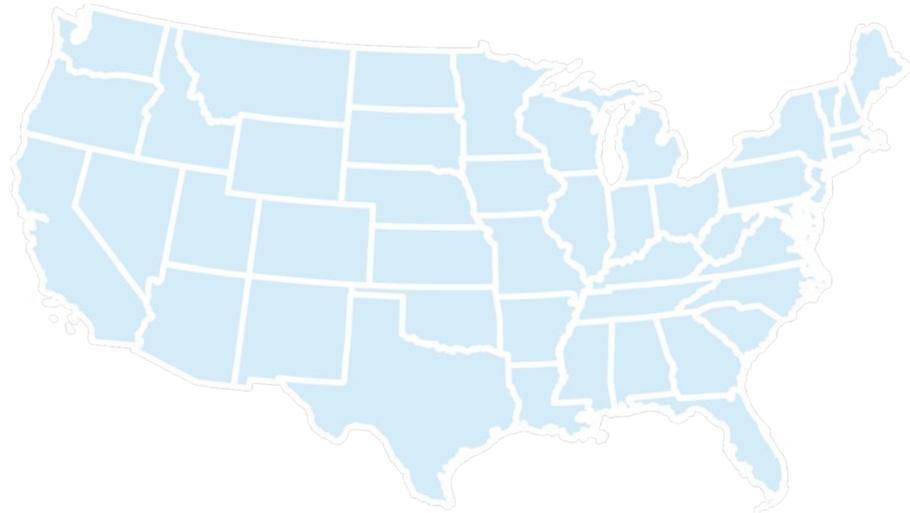
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# Presentation Overview

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- ▶ RNG By The Numbers
- ▶ Industry Trajectory
- ▶ Policy



# Renewable Natural Gas can & should be part of the United State's solution to...

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- ▶ Cut Smog & Air Pollution
- ▶ Combat Climate Change
- ▶ Stabilize Fuel Price Volatility
- ▶ Reduce Dependence on Foreign Oil
- ▶ Curve Unsustainable Waste Practices



# Renewable Natural Gas is...

- ▶ Clean
- ▶ Domestic
- ▶ Abundant
- ▶ Affordable
- ▶ Sustainable



RNG provides an **ultra-clean**, very-low carbon fuel to a **new generation of medium and heavy duty NGVs**



USING  
**100%**  
RNG



in vehicles can reduce  
**GHG** emissions by  
more than



USING  
**20%**  
RNG-blend



provides a **GHG**  
reduction between



**RNG**

from some sources are  
**carbon negative**,  
meaning that they  
sequester **GHG** during  
the fuel lifecycle.



# NATURAL GAS PROVIDES



**90%** LOWER NO<sub>x</sub> EMISSIONS  
WITH NEW "NEAR-ZERO" ENGINE

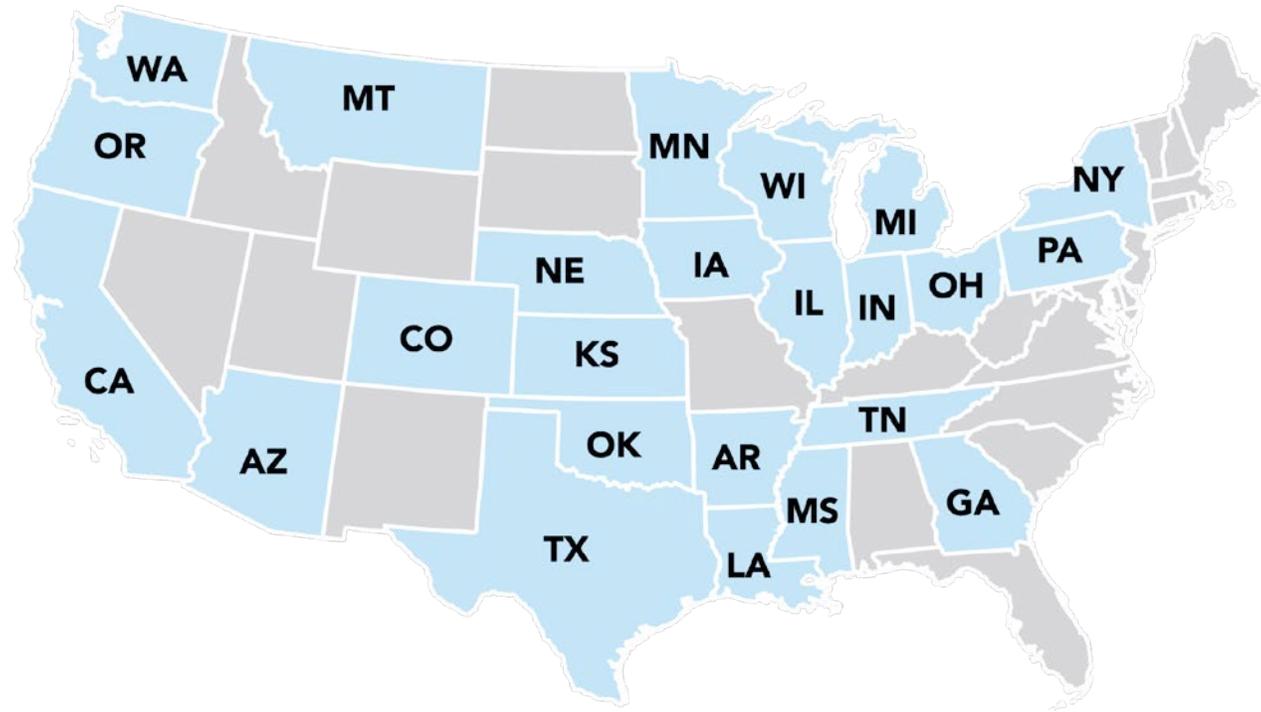
**99%** SO<sub>x</sub> REDUCTION



RNG helps create **fuel security** by diversifying America's fuel supply and **reducing dependence** on foreign oil



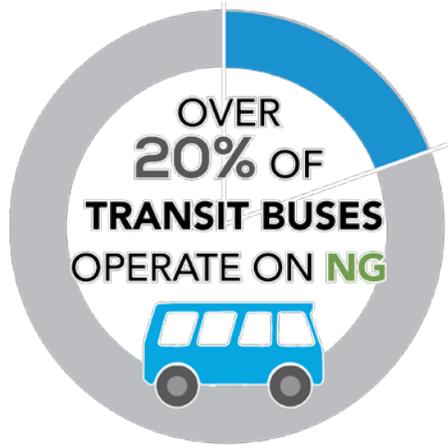
# RNG projects operate or are under construction in 24 States



## RNG + NGVs

provide consumers with  
**vehicles** and **fuel options**  
increasing competition and  
driving down prices at the pump





RNG promotes **sustainability** and helps ensure waste isn't wasted



**U.S. RETAILER AND  
CONSUMERS DISCARD  
133 BILLION  
POUNDS OF FOOD  
ANNUALLY**



**RNG PROJECTS CAPTURE THE GHG FROM FOOD AND OTHER ORGANIC WASTE THAT WOULD OTHERWISE ESCAPE INTO THE EARTH'S ATMOSPHERE.**



# POTENTIAL SOURCES OF ORGANICS USED TO PRODUCE RNG INCLUDE:



**FOOD WASTE**  
**66.5 MILLION**  
**TONS / YEAR**



**WASTEWATER**  
**17,000**  
**FACILITIES**



**AGRICULTURE**  
**WASTE**  
**8,000**  
**LARGE FARMS**  
**AND DAIRIES**



**LANDFILL GAS**  
**1,750**  
**LANDFILLS**



# The U.S. Renewable Natural Gas Industry is Gaining Momentum



# RNG PRODUCTION FOR TRANSPORTATION FUEL

**GREW BY 5X**  
BETWEEN 2013 AND 2015

IS ON PACE TO **TRIPLE** IN VOLUME  
BY 2018

25.9 M EGE

VS

139.8 M EGE

VS

**481.5 M EGE  
PROJECTED**

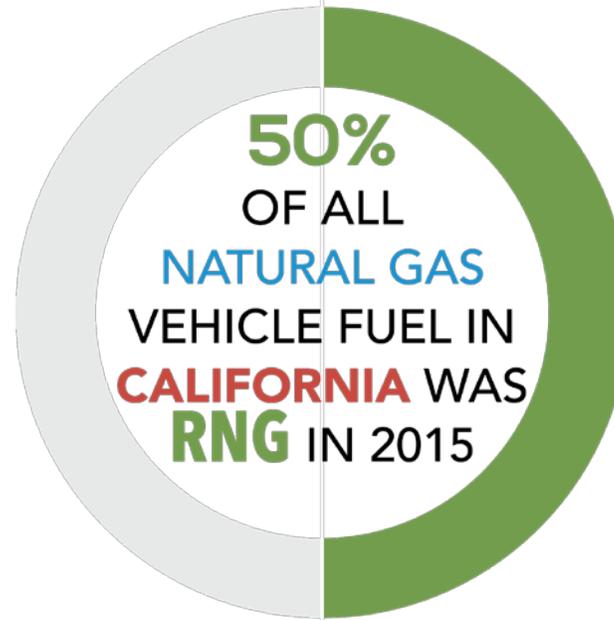


**40 PROJECTS** IN NORTH AMERICA  
PRODUCE **ULTRA-LOW CARBON RNG**  
FOR TRANSPORTATION FUEL USE; AND THE  
NUMBER OF PROJECTS IS ON TRACK TO  
**DOUBLE TO 80** BY THE END OF **2018**





OF **NATURAL GAS** USED  
IN TRANSPORTATION  
TODAY IS **RNG**



# Why is this happening?

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- ▶ Superior Environmental Attributes
- ▶ Industry Leadership & Organization
- ▶ Increased Awareness
- ▶ Policy Responsiveness



# Thank you!

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