Renewable Natural Gas (RNG) Industry in the U.S.: Policy & Market Forces

November 2, 2017

Marcus Gillette

Director of Public Affairs

Coalition for Renewable Natural Gas

THE COALITION FOR RENEWABLE NATURAL GAS

THE COALITION FOR

RENEWABLE NATURAL GAS

THE COALITION FOR RENEWABLE NATURAL GAS

Renewable Natural Gas

- Commonly referred to as:
  RNG or **Biomethane** or **Upgraded Biogas**
- Completely **interchangeable** with **Natural Gas**.

RNG (**Renewable**)

Natural Gas (**Geologic**)

RNG COALITION - INTRO

- Policy Platform, Advocacy & Education Voice for RNG Industry in North America
- Non-Profit Organization
- Each Industry Sector Represented
- Industry Competitors Collaborating for Common Good
- Members Produce 90%+ of RNG in North America

THE COALITION FOR RENEWABLE NATURAL GAS

MISSION

The RNG Coalition…

advocates for increased renewable natural gas development and deployment so that present and future generations will have access to domestic, renewable, clean fuel and energy supply.

THE COALITION FOR RENEWABLE NATURAL GAS

RNG COALITION - LEADERSHIP

RNG COALITION - GENERAL MEMBERS

AG POWER FIELD PROCESSING Affiliate of NLCA-AGP LLC

Akin Gump STRAUSS HAUER & FELD LLP

ARI

BERQ RNG

BIGOX ENERGY

CALYSTA

Comerica Bank

CGA Canadian Gas Association Association canadienne du gaz

cornerstone environmental

CWM Crenshaw, Ware & Martin, PLC

Cummins

Westport

dmt Clear Gas Solutions

DriveGreen

DTE Energy

ECOENGINEERS People Driven Solutions

ENERDYNE Power Systems Inc.

Cynthia Obadia Consulting

ENERGYNEERING SOLUTIONS INC

EMERSON

EVENSOL LLC Environmental Energy Solutions

EVERSHEDS SUTHERLAND

EVONIK INDUSTRIES

FC Gas Intelligence

FIRST ENVIRONMENT

Klickitat PUD Owned By Those It Serves

FORTISTAR

GENSCAPE

gti

HALDOR TOPSØE CATALYSING YOUR BUSINESS

The Law Offices of Jeremy D. Weinstein A Professional Corporation

KinetrexEnergy

LIGHTBEAM

LOCI controls

McGUIREWOODS

NGVAMERICA Natural Gas Vehicles for America

REE(think) Rethinking Renewable Energy + the Environment

Renewco

ROESLEIN ALTERNATIVE ENERGY, LLC

SCS ENGINEERS

SCS ENERGY

SOUTHERN COMPANY

Specialized Biogas Services

TERIX ENVIROGAZ

uniongas A Spectra Energy Company

VILTER Since 1867

VNG

weaver Assurance · Tax · Advisory

WCH Westhoff, Cone & Holmstedt

xebec A world powered by clean energy

THE COALITION FOR RENEWABLE NATURAL GAS

RNG COALITION - NON PROFIT MEMBERS

Alabama Clean Fuels Coalition
Clean Fuels · Clean Air · Clean Cities

AMERICAN LUNG ASSOCIATION. IN COLORADO

CLEAN CITIES CENTRAL OKLAHOMA
clean fuels clean technologies clean emissions

CleanFuelsOhio

Dallas-Fort Worth CLEAN CITIES

Clean Cities DENVER METRO COALITION

earth DAY COALITION

EAST TENNESSEE CLEAN FUELS
TNCleanFuels.org

Energy Vision ev

GREATER WASHINGTON REGION Clean Cities Coalition

gti

HOUSTON GALVESTON Clean Cities

LONE STAR CLEAN FUELS ALLIANCE
A DOE Clean Cities Coalition Serving Central Texas

MIDDLE-WEST TN CLEAN FUELS
TNCLEANFUELS.ORG

RNG GLOBAL INITIATIVE

TRIANGLE CLEAN CITIES

Western WA CLEAN CITIES

Louisiana cleanfuels

TULSA AREA CLEAN CITIES

Virginia Clean Cities

THE COALITION FOR RENEWABLE NATURAL GAS

RNG OVERVIEW – U.S. FEEDSTOCKS

POTENTIAL SOURCES OF ORGANICS USED TO PRODUCE RNG INCLUDE:

FOOD WASTE	WASTEWATER	AGRICULTURE WASTE	LANDFILL GAS
66.5 MILLION TONS / YEAR	17,000 FACILITIES	8,000 LARGE FARMS AND DAIRIES	1,750 LANDFILLS

- WWTP / MSW (100,000 residents); AD (500 head of cattle or as low as 150 when mixing with organics); Other sources include Forestry Biomass and Forest Product Residue, FOGS

U.S. Context: Past, Present, Future

1982 - Fresh Kills Landfill (NY) 1st U.S. RNG Project Developed (Still Operating)

1982-2011 – Historically, state RPS programs have driven production of **RNG as a clean, renewable, electric power** to displace coal and complement geologic natural gas.

RNG Coalition Founded in 2011: (there's a story here…)

31 RNG Projects Operating

- Nearly 100% Off-Site Electric Generation

ADVOCACY & EDUCATION PHILOSOPHY

Advocacy & Education informs Public Policy.

*Public Policies **influence Markets.***

*Markets **drive Demand.***

*Demand **determines Value.***

*Value **impacts Revenue.***

*Revenue **affects Sustainability.***

THE COALITION FOR RENEWABLE NATURAL GAS

PRIORITY

**Enable the RNG industry to develop & double the number of operating RNG projects in North America by 2025.*

**based on number of RNG projects operating in 2015*

Advocacy Opportunities…. Many

Grant Funding & Financing

Byproduct Markets (digestate, fertilizer, etc.)

Pipeline Injection

Renewable Power Policy (prices low)

Renewable Fuel Policy

Natural Gas Vehicles / Engines (Demand & Use)

THE COALITION FOR RENEWABLE NATURAL GAS

ADVOCACY & EDUCATION PHILOSOPHY

Advocacy & Education informs Public Policy.

Public Policies ***influence Markets.***

Markets ***drive Demand.***

Demand ***determines Value.***

Value ***impacts Revenue.***

Revenue ***affects Sustainability.***

THE COALITION FOR RENEWABLE NATURAL GAS

Advocacy Opportunities…. Prioritize

Grant Funding & Financing

Byproduct Markets (digestate, fertilizer, etc.)

Pipeline Injection

Renewable Power Policy (prices low)

Renewable Fuel Policy

Natural Gas Vehicles / Engines (Demand & Use)

THE COALITION FOR RENEWABLE NATURAL GAS

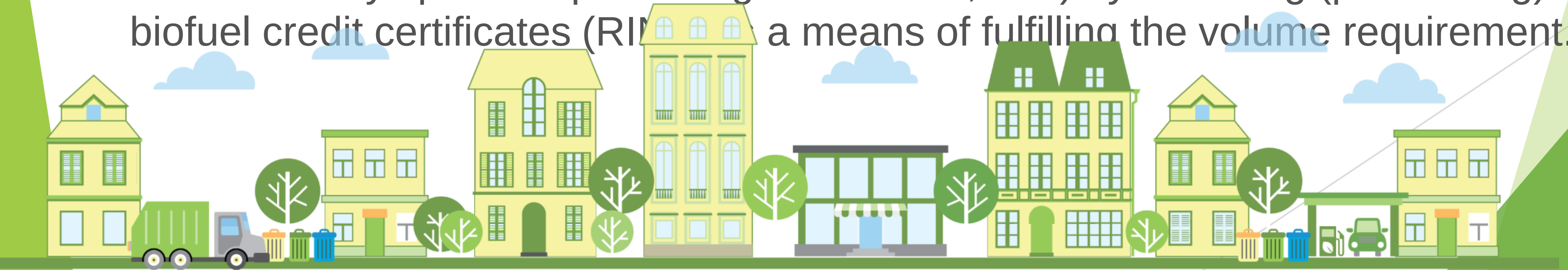
RNG PRODUCTION - PRESENT

Increasingly, federal, state/provincial programs (RFS, LCFS, CFP) are driving production of **RNG as ultra-low carbon transportation fuel** for a new generation of medium- and heavy-duty Natural Gas Vehicles.

RNG PRODUCTION – PAST TO PRESENT

RENEWABLE FUEL STANDARD (RFS)

- **Policy, mandated by legislation -- Enacted in 2005 (Energy Policy Act)**
- **Amended and Expanded in 2007 – Energy Independence & Security Act (EISA)**
- **Administered by Environmental Protection Agency (U.S. EPA)**
- **What: U.S. fuel supply must annually blend increasing proportions of renewable / biofuel into our transportation fuel supply mix**
- How: Obligated Parties - Refiners & importers of gasoline & diesel must participate in the program 1) by blending renewable fuel into transportation fuel at an annually specified percentage of volume, or 2) by obtaining (purchasing) biofuel credit certificates (RINs) as a means of fulfilling the volume requirement.



RENEWABLE FUEL STANDARD (RFS)

HOW IT FUNCTIONS (…continued)

- Renewable Identification Number -- A **RIN** is serial number assigned to a volume of RFS-qualifying biofuel for purposes of tracking its production, use and trading

- **1st, 2nd, 3rd Generation Biofuels (biofuel, advanced, cellulosic)**

- **Increasing RIN value with the increased environmental benefit of each category**

- **Cellulosic Biofuel – cleanest fuels category…**
  - fuel feedstock/production methods with 60%+ GHG reduction over diesel

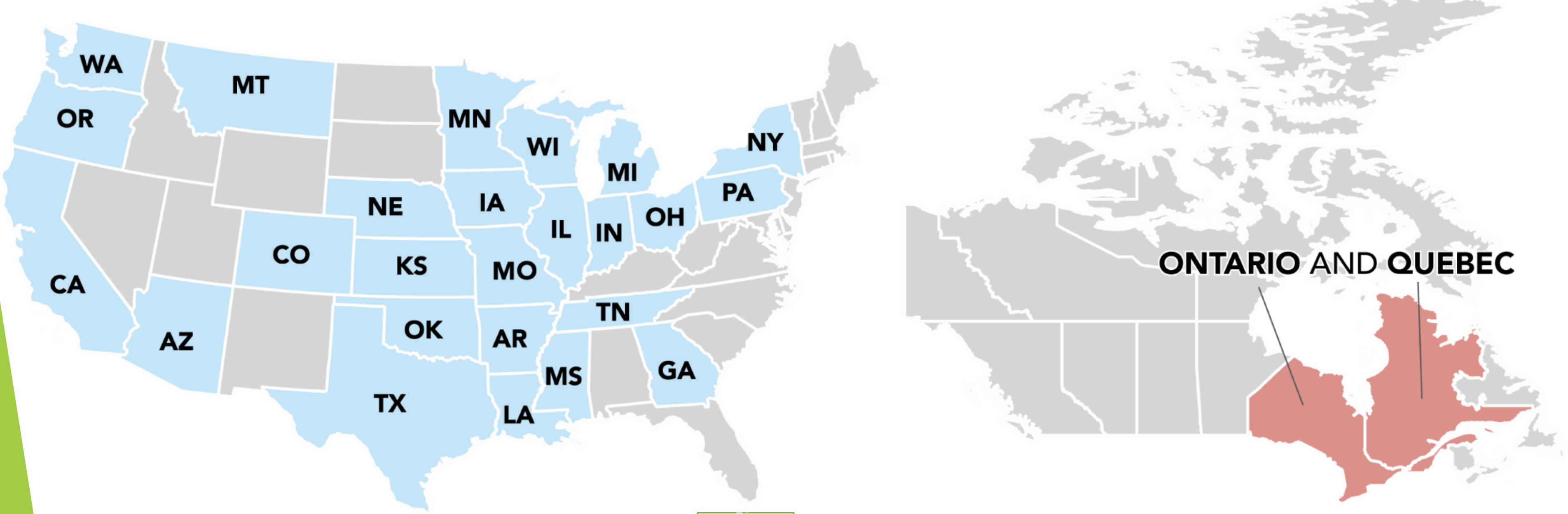
- **2013-14: Worked with EPA to help RNG fuel methods achieve Cellulosic eligibility**

(Since 2014, RNG = 98% of RFS-qualified Cellulosic Biofuel

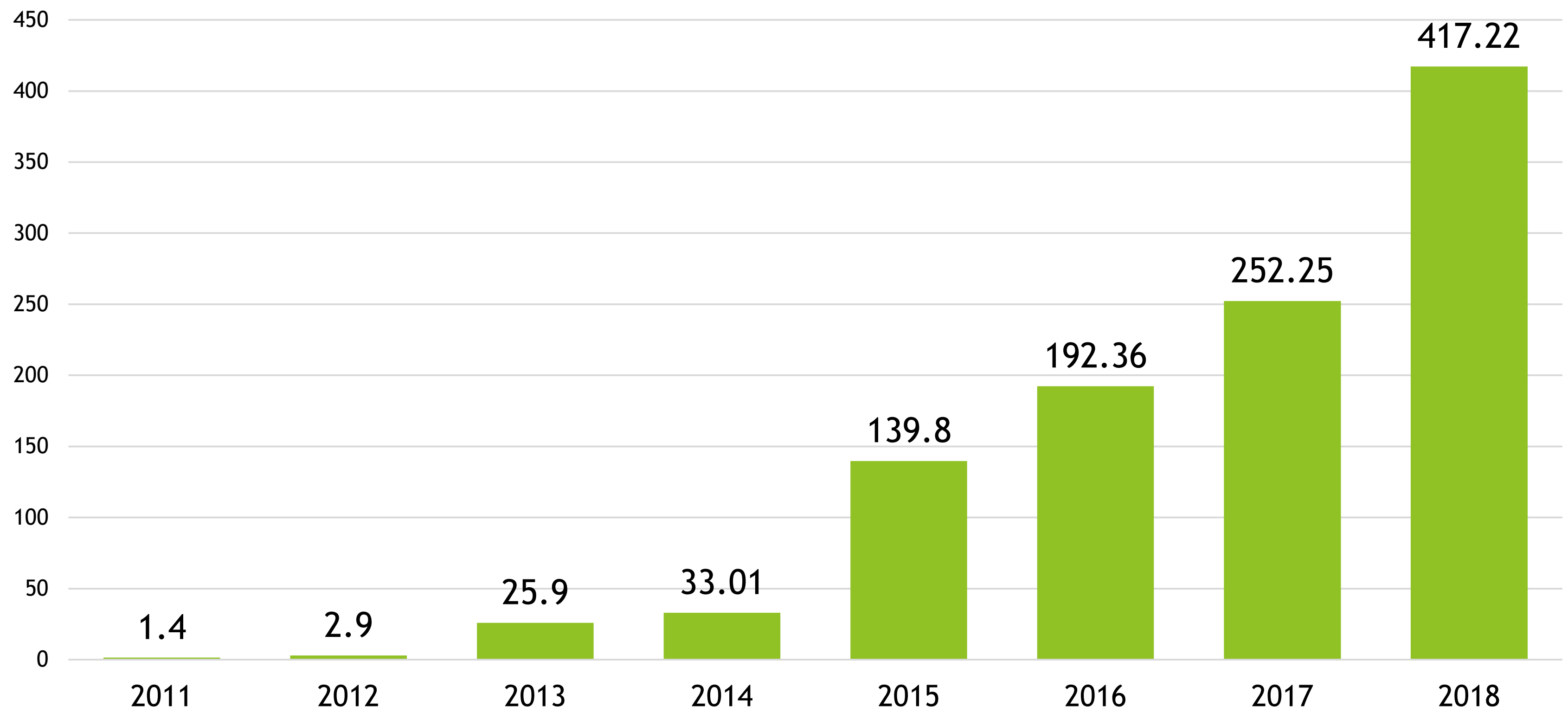
RNG - NORTH AMERICA

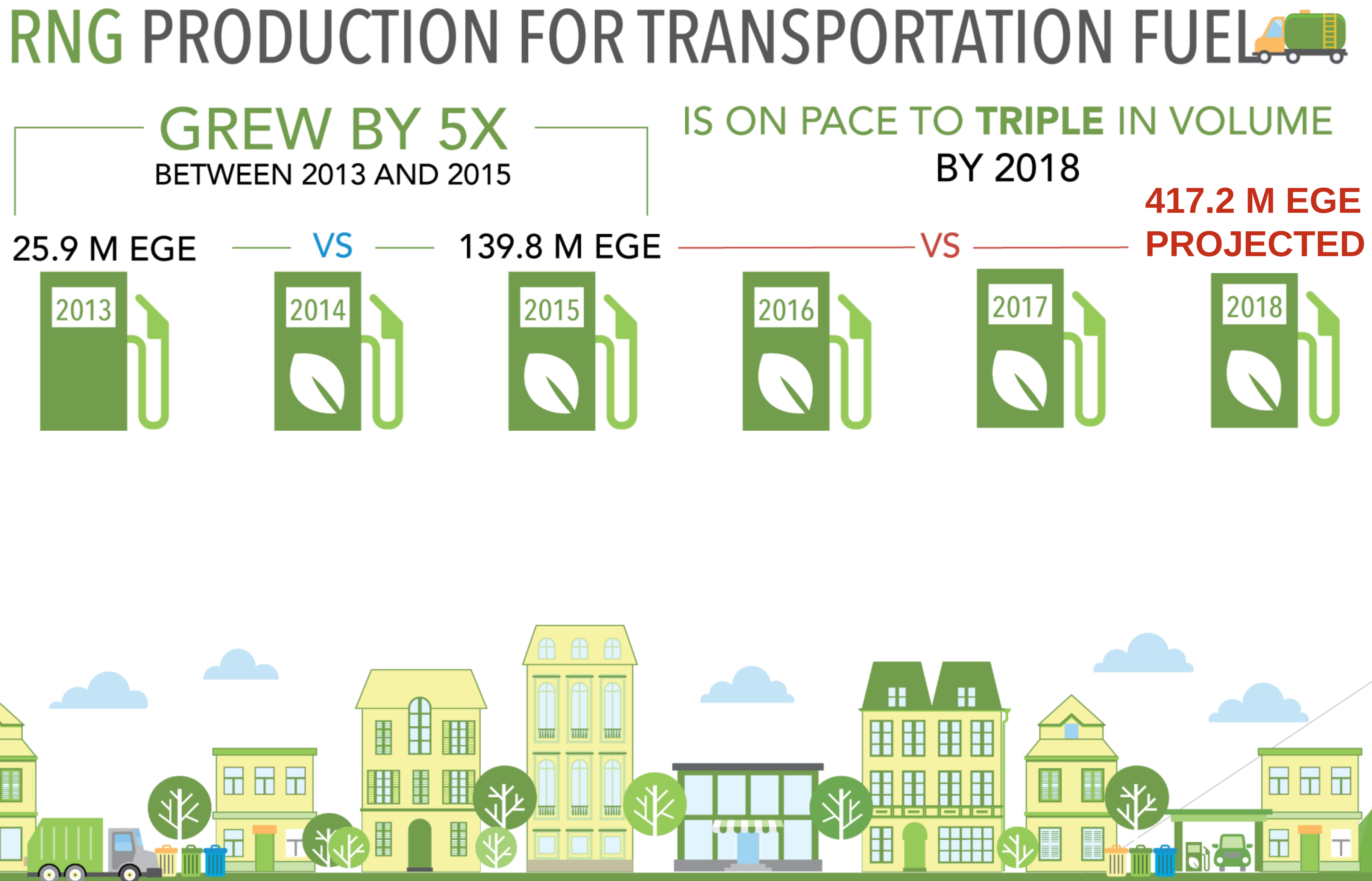
RNG PROJECTS OPERATE OR ARE UNDER CONSTRUCTION IN

27 U.S. STATES AND 2 CANADIAN PROVINCES INCLUDING:



RNG Transportation Fuel Volume (Million EGE)




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
417.2 M EGE
PROJECTED
2013
2014
2015
2016
2017
2018

RNG INDUSTRY IN U.S. - PRESENT

2011-2017

57+ RNG Projects Now Operating in U.S.

26 New RNG Projects Being Developed

2017

RNG COALITION MEMBERS

(grown to 100+ today from ~50 in 2014)

on track to produce =

375,382,434 EGE of RNG

(76% to Transportation fuel, 24% to Off-site Power Generation)

Industry Advocacy Growth & Success – How?

Resources – *Nearly all members pay annual dues: $5,000 general & $25,000 leadership*

Keeping it Simple, but effective –

Structure *3 board members + 2 founders* *Staff: Grown from 2, to 3, to 8*

Prioritize *2-3 areas of effective advocacy > 5-10 areas running too thin*

Advocacy – *One Voice – We formulate comments, members copy or issue letters of support*

Partner – Get buy-in from related industries on key issues

Conference & Interaction – At least half of members in-person 2+ times per year

Executive Brand – Targeting Decision-makers

Established Industry

THE COALITION FOR RENEWABLE NATURAL GAS

THANK YOU!

THE COALITION FOR RENEWABLE NATURAL GAS

Marcus D. Gillette
Director of Public Affairs

(o) 001.916.588.3033 ext. 3
(c) 001.541.948.9904

(e) Marcus@RNGCoalition.com
(w) RNGCoalition.com

@CoalitionForRNG

THE COALITION FOR RENEWABLE NATURAL GAS

Increased RNG Production:

Impediments & Solutions

THE COALITION FOR RENEWABLE NATURAL GAS

+ RNG PRODUCTION - IMPEDIMENTS

1. Production Costs (vs. Low NatGas Price)
2. Market Uncertainty
3. Access to Investment Capital
4. Policy Incongruence
5. Pipeline Access
6. Vehicle Demand (vs. Diesel, EVs)

+ RNG PRODUCTION - SOLUTIONS

1. Advocate for Funding to Advance Technological Developments that Reduce RNG Production & Infrastructure Costs

+ RNG PRODUCTION - SOLUTIONS

2. Educate Stakeholders (General Public, Industry & Elected Officials) about the Economic & Environmental Benefits realized through increased Development & Deployment of Renewable Natural Gas

+ RNG PRODUCTION - SOLUTIONS

3. Advocate for greater certainty of Public Policies that shape RNG Markets, determine RNG demand & drive RNG production – this will unlock greater access to investment capital.

+ RNG PRODUCTION - SOLUTIONS

4. Advocate for Public Policies to recognize the economic value and global environmental benefits associated with increased RNG utilization, regardless of geographic origin of development

+ RNG PRODUCTION - SOLUTIONS

5. Advocate for monetary incentives and reasonable regulations that enable greater pipeline access for and transportation of RNG

+ RNG PRODUCTION - SOLUTIONS

6. Advocate for technology neutral funding that will also incentivize and or enable diesel owners to purchase new or otherwise convert their fleets to natural gas engines fueled by RNG