

Powering Businesses, Homes & Vehicles with Waste: Growing the Economy & Jobs with Renewable Natural Gas

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THE COALITION FOR
**RENEWABLE
NATURAL GAS**



PRESENTATION OVERVIEW

- u RNG Coalition
- u RNG & Feedstock Sources
- u RNG Production & Projection
- u Economic Benefits
- u Call to Action



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RNG COALITION

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RNG COALITION

- u Policy Platform, Advocacy & Education Voice for RNG Industry in North America
- u Non-Profit Organization
- u Each Industry Sector Represented
- u Members Produce 90%+ of RNG in North America
- u 98% of RFS-qualified Cellulosic Biofuel
- u Industry Competitors Collaborating for Common Good



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RNG COALITION - LEADERSHIP



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RNG COALITION - GENERAL MEMBERSHIP



Akin Gump
STRAUSS HAUER & FELD LLP



CALYSTA



Westport



DTE Energy



Cynthia Obadia Consulting



EVERSHEDS
SUTHERLAND



FORTISTAR

GENSCAPE™



McGUIREWOODS



SCS ENGINEERS

SCS ENERGY



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RNG COALITION - NON PROFIT MEMBERS



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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.



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ADVOCACY & EDUCATION PHILOSOPHY

Advocacy & Education informs Public Policy.

Public Policies influence Markets.

Markets drive Demand.

Demand determines Value.

Value impacts Revenue.

Revenue affects Sustainability.



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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*



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What is RNG?



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Renewable Natural Gas is a product gas
derived from the decomposition of
organic materials in
renewable waste streams.

Renewable Natural Gas is commonly
referred to as RNG or Biomethane.



RNG is biogas that has been upgraded to meet natural gas pipeline quality or transportation fuel grade standards.

RNG is interchangeable with Natural Gas.

RNG (Renewable)
Natural Gas (Geologic)



What is RNG produced from?



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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**

- u MSW: 10,000 tons
- u WWTP / MSW: 100,000 residents
- u AD: 500 head (as low as 150 when mixing organics)



Policy-Driven RNG Production & Projections



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1982

1st RNG Project Developed:
Fresh Kills Landfill (NY)



2011

RNG Coalition Founded: 31 RNG Projects Operating

(Nearly 100% Off-Site Electric Generation)



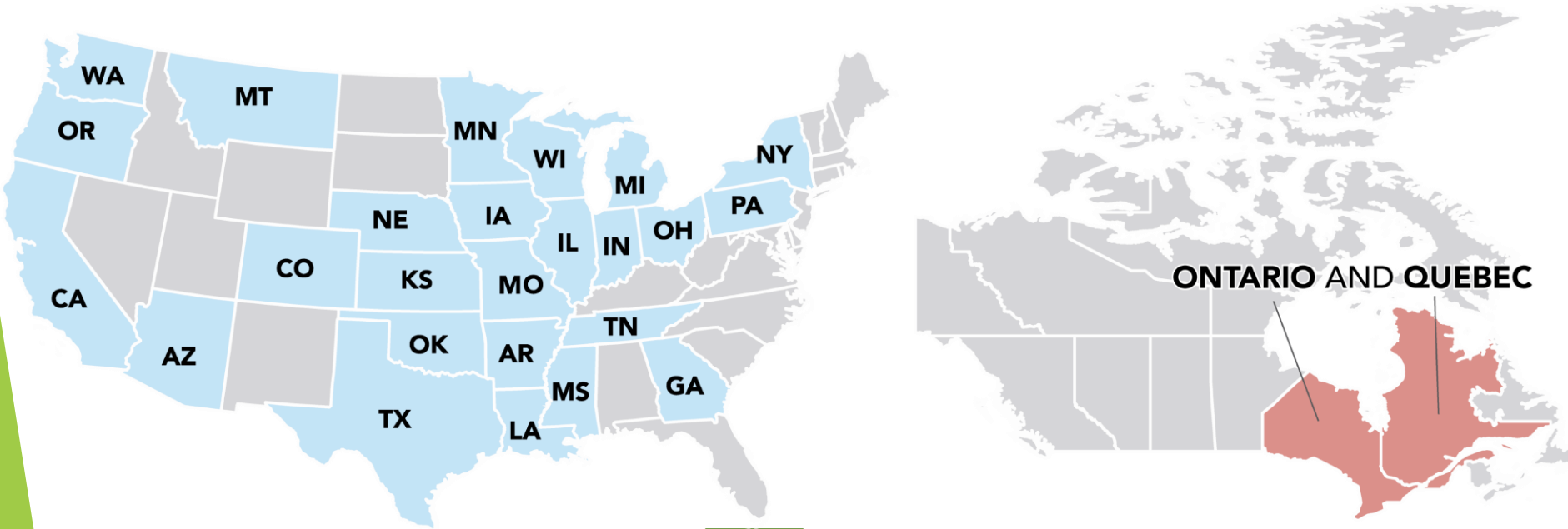
2011-2017

26 New RNG Projects Developed:
57 RNG Projects Operating



RNG IN NORTH AMERICA

RNG PROJECTS OPERATE OR ARE UNDER CONSTRUCTION IN
27 U.S. STATES AND **2 CANADIAN PROVINCES** INCLUDING:



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



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

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



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

**541.4 M EGE
PROJECTED**



2017

RNG COALITION MEMBERS
on track to produce =

375,382,434 EGE of RNG



375,382,434 (EGE):

81,000,000 = Off-Site Power Generation (24%)

294,382,434 = Transportation Fuel (76%)



2018

RNG COALITION MEMBERS

on track to develop 22+ new projects =

622,409,690+ EGE of RNG



622,409,690 (EGE):

81,000,000 = Off-Site Power Generation (13%)

***541,409,690 = Transportation Fuel (87%)**

**16x the 2014 RFS volume;*

*Enough RNG to displace 15%+ of Diesel consumption in California
or power 2-3 million homes annually*



RNG Development: Economic Benefits



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Capital Investment

\$16 Million Invested per Project (average)

22 Projects Developed (1985-2010)

31 Projects Developed (2011-2016)

22+ Projects Being Developed (2017-)

(\$352m RFS-related project construction investment expected in 2018)



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U.S. Job Creation

173 Jobs Per RNG-to-Fuel Project

*Up to 11.2 Direct/Indirect Jobs per MDGE

*(*ICF Int'l: compared to 1.6 Petroleum Refinery jobs per MDGE)*



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Competitive Wages

\$61,820 Per RNG-to-Fuel Project

***Estimated Income per Worker**

*(*ICF Int'l: compared to median CA income of \$31,300.00)*



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Call to Action



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FEDERAL ADVOCACY: RFS2 / REGULATION

- u Continuation of EPA-administered federal RFS Program
- u Approval of REGS amendments to strengthen RFS
- u Issue of CWC only for short-fall (RVO - RNG production)
- u Use CWC to Support Private Financing (purchase RINs)
- u Set RVO at Volume Available
- u Fix Co-Digestion Disincentive



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FEDERAL ADVOCACY: LEGISLATION

- u **SUPPORT:**

- u SB 988 (Brown) - Agricultural Environmental Stewardship Act

- u **OPPOSE:**

- u HR 1314 (Goodlatte) - RFS Elimination Act
- u HR 1315 (Goodlatte) - RFS Reform Act
- u HR 776 (Sensenbrenner) - RFS Reform



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SAVE THE DATE: November 27-30

- u **RNG 2017** - North America's Premier RNG Conference
- u Monarch Beach Resort (Dana Point, California)



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THANK YOU!



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