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

May 23, 2017

Johannes D. Escudero
Founder & CEO
Coalition for Renewable Natural Gas
PRESENTATION OVERVIEW

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

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

[Logos of various companies associated with RNG coalition]
RNG COALITION - NON PROFIT MEMBERS
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.
ADVOCACY & EDUCATION PHILOSOPHY

Advocacy & Education informs Public Policy.
Public Policies influence Markets.
Markets drive Demand.
Demand determines Value.
Value impacts Revenue.
Revenue affects Sustainability.
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
What is RNG?
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?
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

- MSW: 10,000 tons
- WWTP / MSW: 100,000 residents
- AD: 500 head (as low as 150 when mixing organics)
Policy-Driven RNG Production & Projections
1982

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

ONTARIO AND QUEBEC
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

25.9 M EGE VS 139.8 M EGE VS

IS ON PACE TO TRIPLE IN VOLUME BY 2018

541.4 M EGE PROJECTED
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
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)
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)
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)
FEDERAL ADVOCACY: RFS2 / REGULATION

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

**SUPPORT:**
- SB 988 (Brown) - Agricultural Environmental Stewardship Act

**OPPOSE:**
- HR 1314 (Goodlatte) - RFS Elimination Act
- HR 1315 (Goodlatte) - RFS Reform Act
- HR 776 (Sensenbrenner) - RFS Reform
SAVE THE DATE: November 27-30

- RNG 2017 - North America’s Premier RNG Conference
- Monarch Beach Resort (Dana Point, California)
THANK YOU!

Johannes D. Escudero
Founder & CEO

(o) 916.588.3033 ext. 1
(c) 916.520.4RNG (4764)

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

@CoalitionForRNG