EESI / American Biogas Council Briefing
The Benefits of Leveraging Renewable Natural Gas (Biogas) as a Transportation Fuel

May 22, 2019
The Love’s Family of Companies Related to the Transportation Industry.

- Founded 1964, headquarters in Oklahoma City
- 475 travel stops in 41 states, 22k employees

- 750+ trucks – fueled by RNG, biodiesel and renewable diesel
- Delivery of fuel and other products to Love’s stores nationwide

- Commodity supply, trading, and logistics
- Supply gasoline, diesel, ethanol, DEF, biodiesel & renewable diesel

- Alternative fuels: RNG, hydrogen, solar & EV charging
- Turn-key engineering, construction, operations & maintenance
- On-site power generation with energy storage solutions

- Inspection & preventative maintenance services heavy-duty trucks
- 52 nationwide service stations and 25+ years experience
Trillium is focused on building low-carbon transportation infrastructure.

We work with our clients to identify the fuel and power supply sources that work best for their goals and objectives, balancing cost, reliability, deployment schedule, sustainability goals, location, and scale.

We understand the cost and benefit of deploying clean transportation solutions.
Renewable Natural Gas (RNG)

RNG is the perfect alternative fuel
It turns our waste into hydrogen, electricity, LNG and CNG

An American Fuel
Sourced by American Labor using American Technology

50
Renewable natural gas is produced in every U.S. state. 34 states produce geologic natural gas

4.1 million
4.1 million natural gas industry jobs nationwide

#1
America is the world's leader in natural gas production and technology

$$$$$$
Natural gas fueling pays into the federal highway trust fund

RNG is the most versatile alternative transportation fuel.
RNG production accounts for approximately 95% of the cellulosic (D3) category.
RNG as a transportation fuel is... 

Lowering greenhouse gas emissions equivalent to removing 1,539,565 gasoline passenger cars from our roads for one year.

Reducing CO₂ emissions equivalent to 815,950,377 gallons of gasoline or 712,313,458 gallons of diesel consumed.

Sequestering carbon equal to growing 119,902,624 tree seedlings for ten years or 8,534,274 acres of U.S. forests for one year.

This assumes RNG production has reduced 7,251,351 metric tons of CO₂e in the last 5 years.

In 5 years RNG use has increased 577% displacing over 7+ million tons of CO₂
The RNG engine technology (r)evolution

- **ISL G NZ (8.9L)**
  - Now CARB & EPA Certified to 90% below existing standard

- **ISB6.7 G (6.7L)**
  - To be CARB & EPA Certified to 50% below existing standard

- **ISX12 G NZ (11.9L)**
  - To be CARB & EPA Certified to 90% below existing standard

*Information provided by Cummins Westport

The Cummins Westport engines have evolved; solving earlier challenges.
NZ Technology Perspective

1,000 trucks (2019) emit the same amount of NOx as ONE (1) truck from 1987
Estimates based on engine efficiency

The lower the carbon intensity, the cleaner the fuel.

**Fuel carbon intensity includes lifecycle**

**Carbon Intensity Transportaiton Fuels**

CARB certified the carbon intensity for the AMP America’s dairy manure project -254.94 gCO2e/MJ

The lower the carbon intensity, the cleaner the fuel.