

# RNG

## RENEWABLE NATURAL GAS

### A Simple, Clean, Economically-Beneficial Replacement for Diesel Fuel Today

#### ***RNG: The Solution to a Major Transportation Challenge.***

**RNG frees “workhorse” truck and bus fleets from oil:** The ten million U.S. trucks and buses provide essential services to American communities, and they transport goods worth nearly 70% of the GDP<sup>1</sup>. These vehicles use 23% of all highway fuel<sup>2</sup>, almost entirely high-carbon diesel, produced from foreign oil, whose price and availability are set by many suppliers with interests not necessarily allied to our own. Conventional and renewable natural gas are the only clean secure fuels able to replace major quantities of diesel, freeing this crucial vehicle sector from reliance on oil.

**RNG is just like conventional natural gas – but better:** While RNG is interchangeable with conventional natural gas, it has a big difference. It is sustainable year after year being made from gases emitted by organic wastes like household garbage and livestock manure. By capturing these gases from landfills, farms or anaerobic digesters, RNG has close to zero carbon emissions<sup>3</sup>.

**RNG can be made in commercial quantities now:** Organic wastes thrown away daily in every city, town, and rural region can be turned into enough RNG fuel – with today’s off-the-shelf technology – to



replace between 16% and 25% of diesel vehicle fuel used in the U.S.<sup>4</sup>.

**RNG could displace much more in the future:** “Gasification technologies,” now on the horizon, can turn woody wastes also into fuel, greatly expanding RNG supplies. Through “anaerobic digestion” and “gasification,” RNG could displace the lion’s share of vehicle diesel demand. However, RNG and conventional natural gas could clearly and rapidly displace all diesel fuel, eliminating almost a quarter of the oil-based highway fuel consumed in the U.S.

#### ***Why are trucks and buses so important when it comes to oil?***

***The 10 million trucks and buses in the U.S. consume 38 billion gallons of diesel a year – 23% of all road fuel made largely from***

***imported oil costing \$110 million a day. Natural gas is the only plentiful clean fuel that can replace diesel.***



**RNG requires no breakthroughs in engines or infrastructure:** RNG is an easy fuel to introduce because no scientific or engineering challenges impede its broad commercial adoption. Mature, proven technologies for natural gas engines, fueling, transport, and storage are deployed across the U.S.

1 U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics; and U.S. Department of Commerce, U.S. Census Bureau, 2007 Economic Census: Transportation Commodity Flow Survey, December 2009

2 U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2007,

3 California Air Resources Board (CARB), 2009. <http://www.arb.ca.gov/regact/2009/lcfs09/lcfsfsor.pdf>

4 The 16% estimate comes from the American Gas Foundation. The Potential for Renewable Gas. September 2011. The 25% estimate comes from an earlier study commissioned by the U.S. Department of Energy: QSS Group (1998). Biogas for Transportation Use: A 1998 Perspective.

## ***RNG means a Stronger Economy and New Jobs***

**RNG strengthens the US economy:** Investing in RNG and conventional natural gas to put domestic fuels into the tanks of all U.S. trucks and buses would stem the outflow of \$110 million per day or more than \$40 billion per year<sup>5</sup> now sent abroad to pay for diesel-related oil imports.

**RNG creates non-exportable jobs:** The design, construction, and operation of RNG plants to supply about 50% of diesel fuel demand would create more than 250,000 jobs<sup>6</sup>. Hundreds of thousands of additional jobs would be needed for the manufacture of vehicles equipped with natural gas engines and the construction of refueling infrastructure to dispense the fuel<sup>7</sup>.

**RNG increases the value of wastes and saves taxpayer dollars:** RNG production turns every community's discards into prized resources. It diverts wastes from expensive landfills, reduces waste management costs, and saves taxpayer dollars. After making RNG, what remains are nutrient-rich fertilizers and soil-enhancing organic materials.

**RNG lowers and stabilizes fuel costs:** RNG production costs vary but the fuel can be marketed at a price competitive with diesel, and RNG prices will be more stable than diesel over time<sup>8</sup>.

## ***RNG use will help meet U.S. Environmental Goals***

**RNG slashes carbon emissions to near zero:** RNG has lower carbon emissions – measured over the “lifecycle” of the fuel’s production, transport and use – than any other vehicle fuel available<sup>9</sup>.

**RNG cleans the air and improves the environment in other ways:** RNG and conventional natural gas vehicles, vs. comparable diesel vehicles, produce up to 80% less health-threatening nitrogen oxide emissions and virtually no particulate emissions, without the need for expensive pollution controls<sup>10</sup>. They meet 2013 EPA clean-air standards today. Further, while RNG production does no damage to valuable farmlands or water resources, it turns many common wastes, now “environmental burdens,” into a “clean fuel solution.”

***Why is it smart to use RNG fuel for vehicles instead of for power generation?***

***Many renewable energy sources – wind, solar, geothermal, etc. can be used to generate power. But only conventional and renewable natural gas can replace a significant amount of oil in transportation while safeguarding U.S. national security and strengthening the economy.***

5 Assuming a price of \$100 per barrel per day. For data on U.S. oil supplies, imports, and consumption, see U.S. Energy Information Administration. [http://www.eia.gov/energy\\_in\\_brief/foreign\\_oil\\_dependence.cfm](http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm)

6 American Gas Foundation, The Potential for Renewable Gas. September 2011, Table 8.

7 The Pickens Plan; 2010.

8 CALSTART research, “RNG for Transportation in California”, unpublished report, September 2011

9 California Air Resources Board (CARB), 2009. <http://www.arb.ca.gov/regact/2009/lcfs09/lcfsor.pdf>

10 Source: U.S. Department of Energy, Alternative and Advanced Vehicles Data Center [http://www.afdc.energy.gov/afdc/vehicles/emissions\\_natural\\_gas.html](http://www.afdc.energy.gov/afdc/vehicles/emissions_natural_gas.html)



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