



Fuel a Greener Future

Achieve Carbon Negative Transportation Today

Waste Reimagined

The United States... and our world... have a growing waste management problem. And as that waste breaks down, it emits methane.

This naturally occurring methane is a potent greenhouse gas (GHG) and the second biggest contributor to human-caused global warming after carbon dioxide (CO₂).

Confronting climate change requires capturing these methane emissions, redirecting this energy for positive use and supporting the transition to a circular, carbon-neutral economy.



Investing in commercially available NGVs fueled by RNG is the most cost-effective and immediate climate positive change policymakers can affect. Learn more at [NGVAmerica.org](https://www.NGVAmerica.org).

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What is RNG?



Renewable Natural Gas (RNG), or biogas, is gas produced from methane emitted through the decomposition of animal manure, food waste, forest management waste, wastewater sludge, and garbage.

RNG projects capture this methane and redirect it away from the environment, repurposing it as a clean, green energy source.

Unlike other renewables, RNG is easily stored, distributed, and replenished. Once scrubbed of its impurities, RNG can be injected into the existing global natural gas distribution network. While other sources of green and renewable energy require significant infrastructure buildout in order to be implemented, RNG is affordably and easily used in existing systems and vehicles today.



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Why use RNG for Transportation?

RNG use as a transportation fuel reduces the environmental impact of organic waste, displaces traditional fossil motor fuels, and restores America's local economies by supplying new revenue streams for family farms, employing laborers for facility construction and operation, and creating a whole new green energy workforce. And RNG is zero-emission equivalent when it comes to tailpipe criteria pollutants like nitrogen oxides (NOx).

Fueling vehicles with RNG collected at local landfills, wastewater treatment plants, commercial food waste facilities, and farms can yield a carbon-negative lifecycle emissions result depending on feedstock.

Just released Q3 2020 data from the California Air Resources Board (CARB) confirms that the energy weighted carbon intensity (CI) value of California's RNG vehicle fuel portfolio in the Low Carbon Fuel Standard program is below zero – at -17.95 gCO₂e/MJ – marking the first time in the history of the LCFS program that any low carbon fuel portfolio has achieved a carbon negative status.

RNG holds the lowest carbon intensity of any on-road vehicle fuel, including fully renewable electric from solar or wind.¹

And using RNG to operate traditional internal combustion engines or electric powertrains is both domestically and sustainably sourced and child labor-free.



Start now.

Climate change is cumulative: the longer we wait, the harder it gets to solve. Investing in commercially available natural gas vehicles (NGVs) fueled by RNG is the most cost-effective and immediate climate positive change policymakers can affect.

Newly deployed RNG-fueled trucks and buses can make substantial gains right away:

- NGVs are proven, durable, scalable and in operation on our roadways today
- NGVs are cost effective, with far lower incremental costs over diesel than electric or hydrogen options still in development
- NGVs offer a 1:1 replacement of diesel technology as NGVs offer similar power, torque, and range capabilities as diesel regardless of terrain or weather
- Nationwide refueling infrastructure is in place, storm resilient, and growing; no massive buildout of charge points or transmission capacity is needed
- NGVs require no costly or cumbersome emission control equipment to achieve a zero-emission equivalent tailpipe result
- NGV fuel pricing is consistent and competitive with no hidden charges or added fees
- RNG is a renewable, plentiful, and domestic motor fuel option with no geopolitical influences or human rights concerns related to component supply chain

We can have clean air and reduced emissions today by replacing our nation's aging fleet with RNG-fueled trucks and buses.

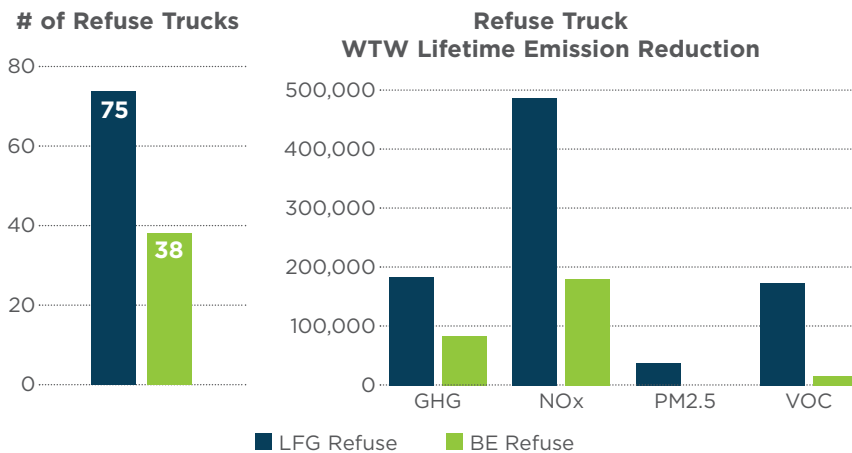
¹California Air Resources Board, Low Carbon Fuel Standard Program, Certified Fuel Pathways. Available at: <https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities>

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What does a \$25 million investment buy? What is its decarbonization and clean air impact?

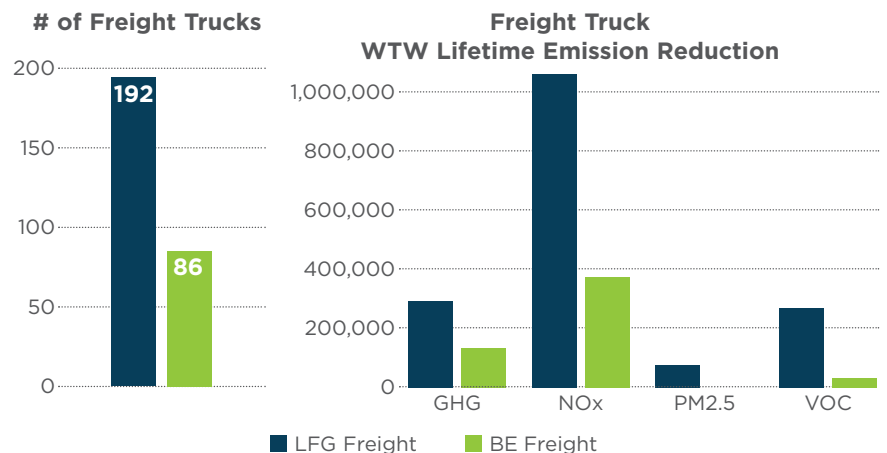
Refuse



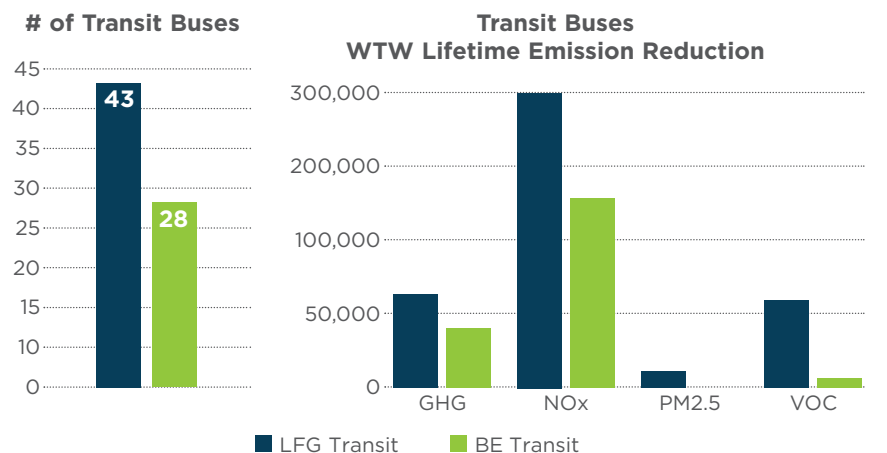
Get more clean heavy-duty trucks and buses on the road today and have a greater environmental impact with natural gas vehicles (RNG fueled) vs. battery electric vehicles by application.

Note: LFG = landfill gas, or renewable natural gas (RNG) produced from landfill waste. BE = battery electric vehicle. GHG reduction figures in tons. Criteria pollutant (NOx, PM2.5, VOC) reduction figures in pounds. The well-to-wheel (WTW) reductions for criteria pollutants and GHG emissions including benefits associated with landfill gas were calculated utilizing Argonne National Laboratory's AFLEET tool. GHG emission reduction figures will improve dramatically when refueling with RNG derived from agriculture waste. Refuse vehicle cost figures calculated based on discussions with industry experts. Class 8 freight (combination short haul) vehicle figures calculated using AFLEET tool values. Transit bus figures are actual transit agency vehicle purchase figures from the National Renewable Energy Laboratory's ongoing Foothill Transit study. All figures assume a 1:1 deployment from diesel.

Class 8 Freight



Transit



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Policy Recommendations

Allow for all viable clean technologies.

Combatting climate change is not an individual sport; we all contribute in some fashion. Policies must ensure we all can be part of the solution as success rests on the entire team. Since fleet needs are not all the same, differing clean powertrains are required for differing real-world applications.

Markets, not mandates.

Don't mandate forced electrification. Instead, set aggressive emissions reductions targets and allow individual fleets the flexibility to choose the best clean vehicle technology solution for their needs. Flexibility also supports American innovation and manufacturing, ushering in a new era of varied green transportation-related jobs.

Rely on science. Respect data. Respond now.

Advocate for sensible, fact-based, equitable energy policies that can be implemented efficiently and immediately. Make informed investments based on cost effectiveness and access to affordable, commercially available, ready-right-now technology to get more clean vehicles on the road faster.

Impact frontline communities sooner.

Get more clean replacement vehicles on the road right away with cost effective NGVs fueled by RNG. Today's NGVs are a 1-to-1 replacement for diesel in terms of performance, torque, range, and capability with immediate clean air and carbon reduction results. Big Trucks = Big Impact: replacing one aging diesel truck with one new natural gas-powered truck is the emissions equivalent of removing 119 cars from our roadways.

Consider all costs.

Forced electrification of American transportation includes significant costs in addition to the high costs associated with vehicle purchase and acquisition. These include the build out of added electricity production, transmission, and fast-charging infrastructure. For example, the mandated use of electric transit buses ensures that these costs will be passed on to taxpayers, riders, and ratepayers alike through higher taxes, increased fares, and utility rate hikes.

Make the most of limited public resources.

Constrain carbon now with deployable and scalable RNG-fueled vehicles; no need to wait for technology to develop or become affordable. Get started economically right away.

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The RNG Vehicle Value Proposition

Reimagine Waste



Naturally occurring methane is a potent GHG and the second biggest contributor to human-caused global warming after CO₂



RNG projects capture this methane and redirect it away from the environment, repurposing it as a clean, green energy source

Impact Immediately



Heavy-duty RNG-fueled trucks and buses are commercially available, scalable and on the road now



RNG vehicles offer a 1:1 replacement of diesel technology with similar power, torque, and range capabilities as diesel regardless of terrain or weather

Amplify Impact



RNG holds a lower carbon intensity than on-road vehicle fuel from renewable electric derived from solar or wind



RNG motor fuel use has been verified in the State of California as carbon-negative

Maximize Investment



RNG transport and transit are considerably less expensive than battery electric or hydrogen options



Nationwide refueling infrastructure is in place, storm resilient, and growing; no massive buildout of charge connections or transmission capacity is needed

Green Sustainably



Unlike certain renewables, RNG is easily stored, distributed, and replenished for motor fuel use



RNG is domestically, sustainably, and responsibly sourced, produced without child labor.



RNG is zero-emission equivalent when it comes to smog-forming tailpipe pollutants like NO_x



= 119 Cars

Big Trucks = Big Impact: replacing one aging diesel truck with one new natural gas-powered truck is the clean air equivalent of removing 119 cars from our roadways

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