



National Laboratory
of the Rockies

Fuel Saving Tips for Fleet

John Gonzales
July 22, 2026

Agenda

- 1 Introduction into Fuel Saving Tips**

- 2 Driver Behavior and Policies**

- 3 Light, Medium and Heavy-Duty Vehicle Technologies**

- 4 Alternative Fuels Data Center IdleBox Toolkit**

Introduction into Fuel Saving Tips

▪ The Challenge

- U.S. passenger cars, light trucks and heavy-duty vehicles consume over 6 billion gallons of fuel annually without moving
- There are times that idling might be necessary like with emergency vehicles

▪ The Benefits of Idle Reduction

- Saves significant fuel and money
- Reduces wear on the engine and helps lower maintenance costs
- Has a positive effect on local noise pollution



AFDC IdleBox sign

Driver Behavior and Policies

- Implementing Fuel Saving Strategies
 - The 10-Second Rule: If you were to idle for more than 10 seconds uses more fuel than turning off and restarting the vehicle
 - Warm up the vehicle: Minimize idle time to warm the vehicle. Light driving after start up provides greater benefits
 - Limit the use of Remote Start technologies
 - Obey Local Ordinances and Idle Free Zones



NLR 021196

Light, Medium and Heavy-Duty Vehicle Technologies

- Driver Behavior
- Automatic Start-Stop Technologies
- Auxiliary Power Systems
- Air Heaters
- Automatic Power Management Systems
- Waste Heat Recovery Systems



NLR 021196

IdleBox Tool Kit

Alternative Fuels Data Center: Idle Reduction Basics

Ask Gemini

afdc.energy.gov/conserve/idle-reduction-basics

theSOURCE Home P... Alternative Fuels Da... Bloomberg Energy Compressed Natura... EPA Announces Fina... Taliaferro Imports, I... Transportation Ener... eCFR — Code of Fe...

All Bookmarks

 U.S. DEPARTMENT of ENERGY Office of Critical Minerals and Energy Innovation

Alternative Fuels Data Center

About | Contacts

search site

Fuels & Vehicles ▾ Conserve Fuel ▾ Station Locator ▾ Laws & Incentives ▾

Maps & Data Case Studies Publications Tools

AFDC > Conserve Fuel > Idle Reduction

Idle Reduction

Benefits & Considerations

Heavy-Duty Vehicles

Medium-Duty Vehicles

Light-Duty Vehicles

School Buses

Laws & Incentives

Research & Development

Parts & Equipment

Driving Behavior

Fleet Rightsizing

System Efficiency

Idle Reduction

Idle reduction describes technologies and practices that reduce the amount of time an engine idles. Idling wastes fuel and increases engine wear, so small changes in idling time can lead to noticeable [benefits](#), including fuel savings and a reduction in pollution, noise, and engine wear.

Engines are idled for a variety of reasons, such as to keep vehicles warm or cool and to power emergency lighting, communications, or off-board equipment. Each year, U.S. passenger cars, light-duty trucks, and medium- and heavy-duty vehicles consume [more than 6 billion gallons](#) of diesel fuel and gasoline—without even moving. Roughly half of that fuel is wasted by people idling their passenger vehicles. Idling has a large enough impact on fuel consumption and air quality that many light-duty vehicle manufacturers have implemented stop-start technologies on their vehicles. These automatically shut off the engine when the vehicle stops, quickly and quietly restarting the engine when the gas pedal is pressed.

Idling can usually be reduced without compromising driver comfort or vehicle equipment operations. Learn about:

- [Heavy-duty truck idle reduction technologies](#)
- [Medium-duty truck idle reduction strategies](#)
- [Light-duty vehicle idle reduction strategies](#)
- [School bus idle reduction strategies](#)



IdleBox Toolkit

IdleBox is an online toolkit of print products, templates, presentations, and information resources to assist with idle reduction projects for fleets with light-, medium-, and heavy-duty vehicles, as well as personal vehicles. IdleBox tools can be used for a range of purposes, from printing fact sheets to calculating potential fuel savings to educating and engaging transportation decision makers, fleet managers, environmental managers, and drivers on the benefits of idle reduction.

Get started using the [IdleBox Toolkit](#).

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Thank You!

www.nlr.gov

NLR/PR-5400-101396

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**National Laboratory
of the Rockies**

Propane and Renewable Propane Value Proposition

Gokul Vishwanathan, Ph.D.

Director of Research, Development, and
Innovation

Propane Education & Research Council



Propane Education & Research Council

PERC is a nonprofit, industry-funded council advancing propane safety, training, and R&D — serving on- and off-road transportation, agriculture, residential & commercial, and power generation markets.



1996

Authorized by Congress
under PERA



21

Board members
(9 NPGA · 9 GPA · 3
public)



1½¢/gal

Funded by an assessment
on each gallon odorized or
imported



1 of ~50

U.S. 501(c)s with a
dedicated revenue stream

MARKETS SERVED



On-Road
Transportation



Off-Road
Transportation



Agriculture



Residential



Commercial



Power Generation

Propane Autogas Fleets



Available



Affordable



Reliable



Sustainable

Propane Autogas Fleets



Available



Affordable



Reliable



Sustainable



Join at
slido.com
#1258 969

Which Country is the Largest Producer and Exporter of Propane/LPG?

United States of America



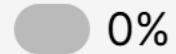
Saudi Arabia



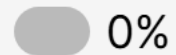
Qatar



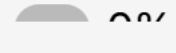
United Arab Emirates



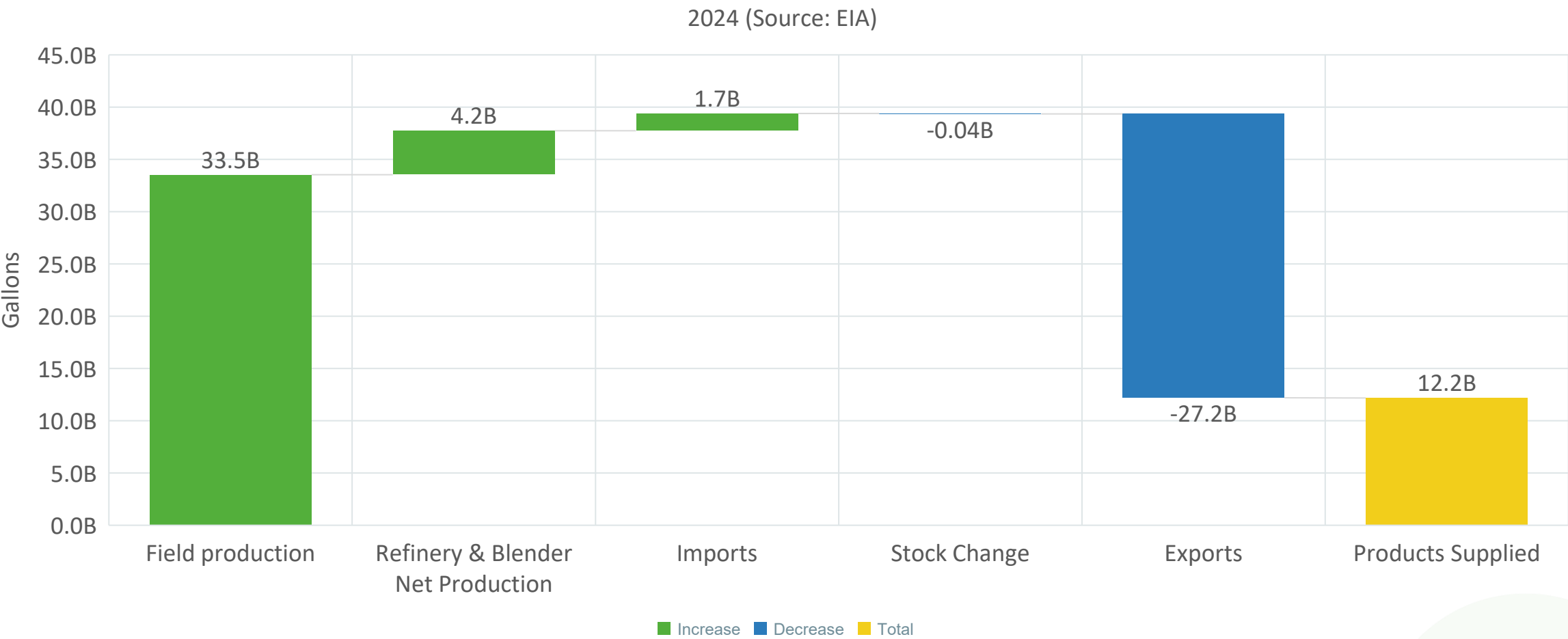
China



Canada



The Propane Value



Total indicates Fuel (retail) plus chemical (wholesale) use volumes

U.S. is the biggest producer and exporter of propane

Propane Autogas Fleets



~~Available~~ Abundant



Affordable



Reliable



Sustainable

Propane Autogas Fleets



Available



Affordable



Reliable



Sustainable

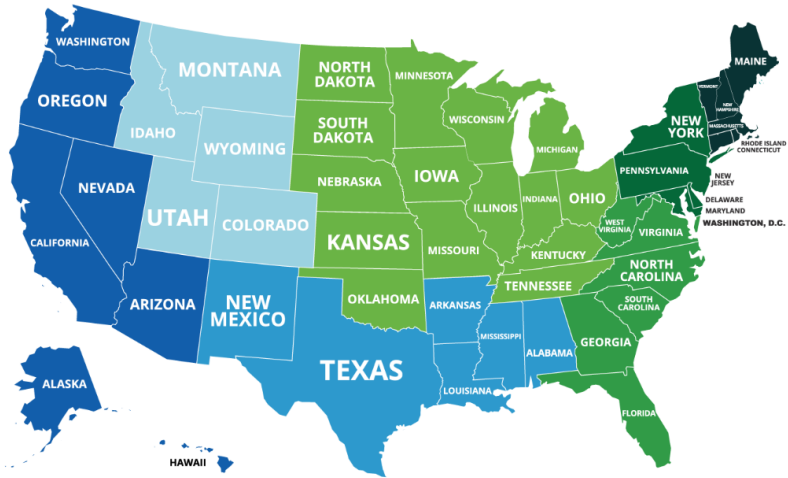
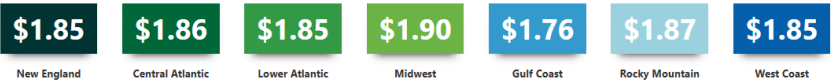
COST ADVANTAGE

Propane Price vs. the Competition

Average Price Per Gallon for the week of July 17, 2026

These prices are based on National averages. To receive a custom quote with your local autogas pricing, contact us today.
Learn more about the savings and stability of autogas.

*Autogas price estimates do not reflect the current federal tax credit.



Alliance Autogas accessed July 20th, 2026

Propane is the lowest-cost fuel — about 37% below gasoline and 44% below diesel on a diesel gallon equivalent basis

NEWS: National Average Moves Higher, Inches Toward \$4 per Gallon [Read more »](#)

NATIONAL AVERAGE GAS PRICESⁱ

	Regular	Mid-Grade	Premium	Diesel	E85
Current Avg.	\$4.0030	\$4.4870	\$4.8730	\$5.1080	\$3.0790
Yesterday Avg.	\$3.9980	\$4.4920	\$4.8740	\$5.1010	\$3.0750
Week Ago Avg.	\$3.8720	\$4.3660	\$4.7520	\$4.8750	\$2.9630
Month Ago Avg.	\$3.9510	\$4.4590	\$4.8370	\$5.0620	\$3.0350
Year Ago Avg.	\$3.1410	\$3.6180	\$3.9780	\$3.7270	\$2.5400

AAA accessed July 20th, 2026

Fuel	\$/gallon	\$/DGE
Regular gasoline	\$4.00	\$4.55
Diesel	\$5.11	\$5.11
E85/E100	\$3.08	\$5.22
Propane (on-road)	\$1.90	\$2.88

BUILDING OUT SUPPLY

Fleet Fueling Infrastructure



Small Private Fleet

~25 vehicles

\$50,000

Single-phase 220V fueling equipment



Large Fleet Depot

~100 vehicles

\$175,000

Full-scale depot fueling installation

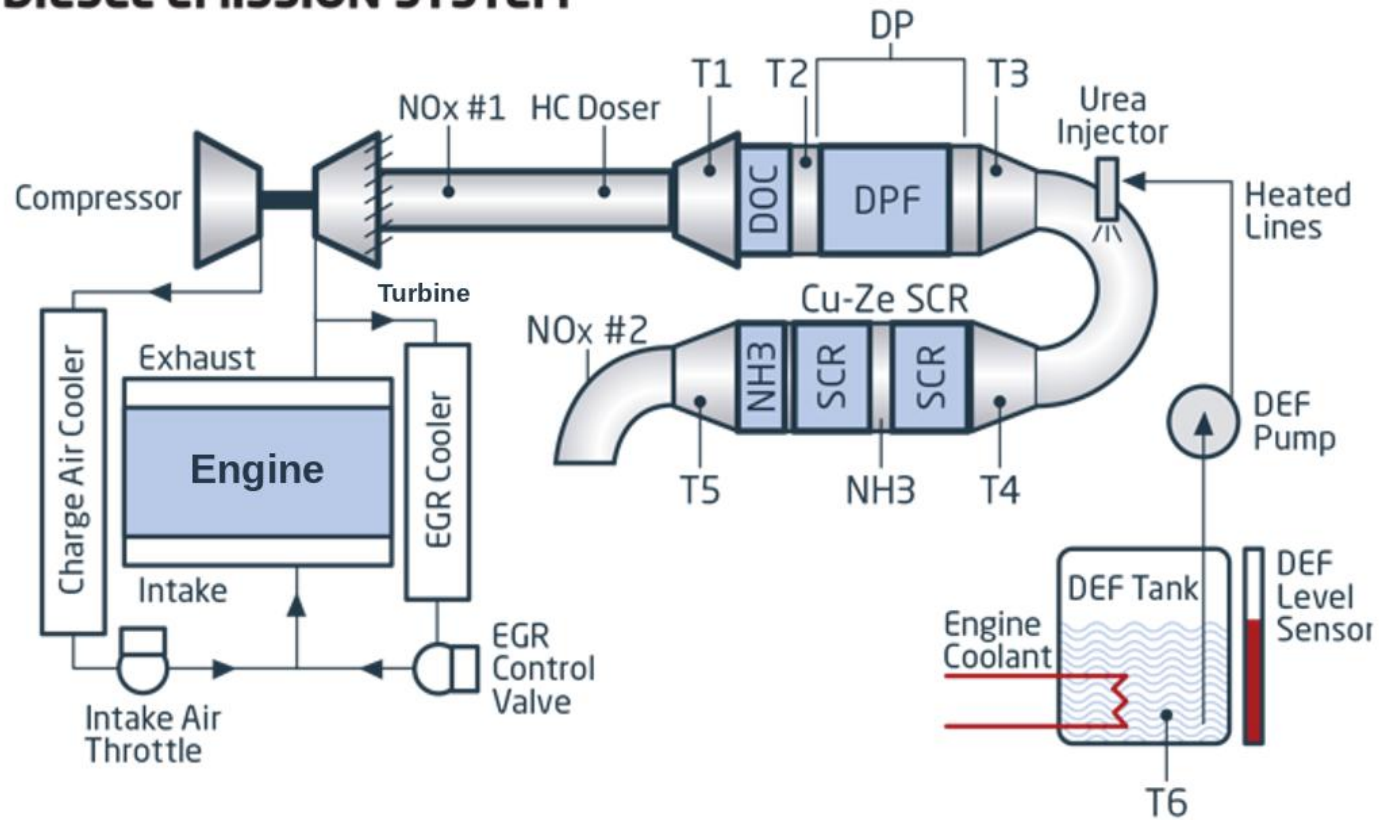
Lower Lifetime Maintenance Costs

- Cleaner combustion and reduced engine wear.
- Lower oil consumption.
- No diesel particulate filters (DPFs).
- No diesel exhaust fluid (DEF).
- No fuel additives.
- Fewer emissions-related failures.

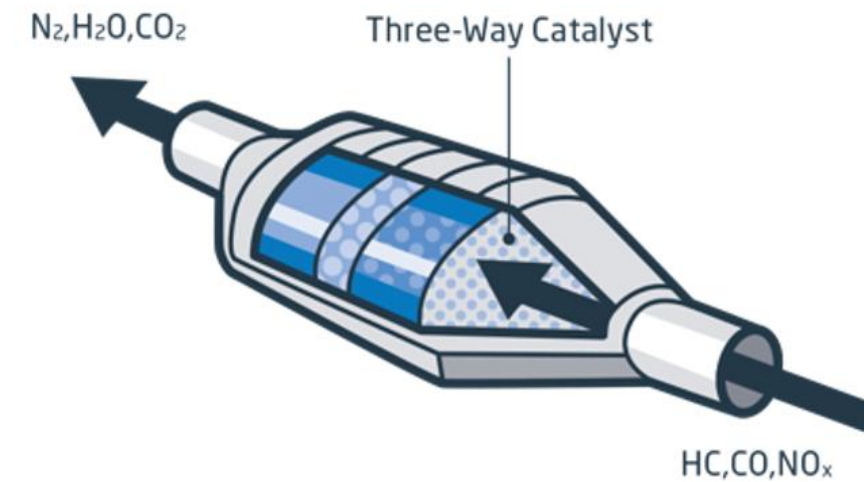


Diesel Emissions Complexity

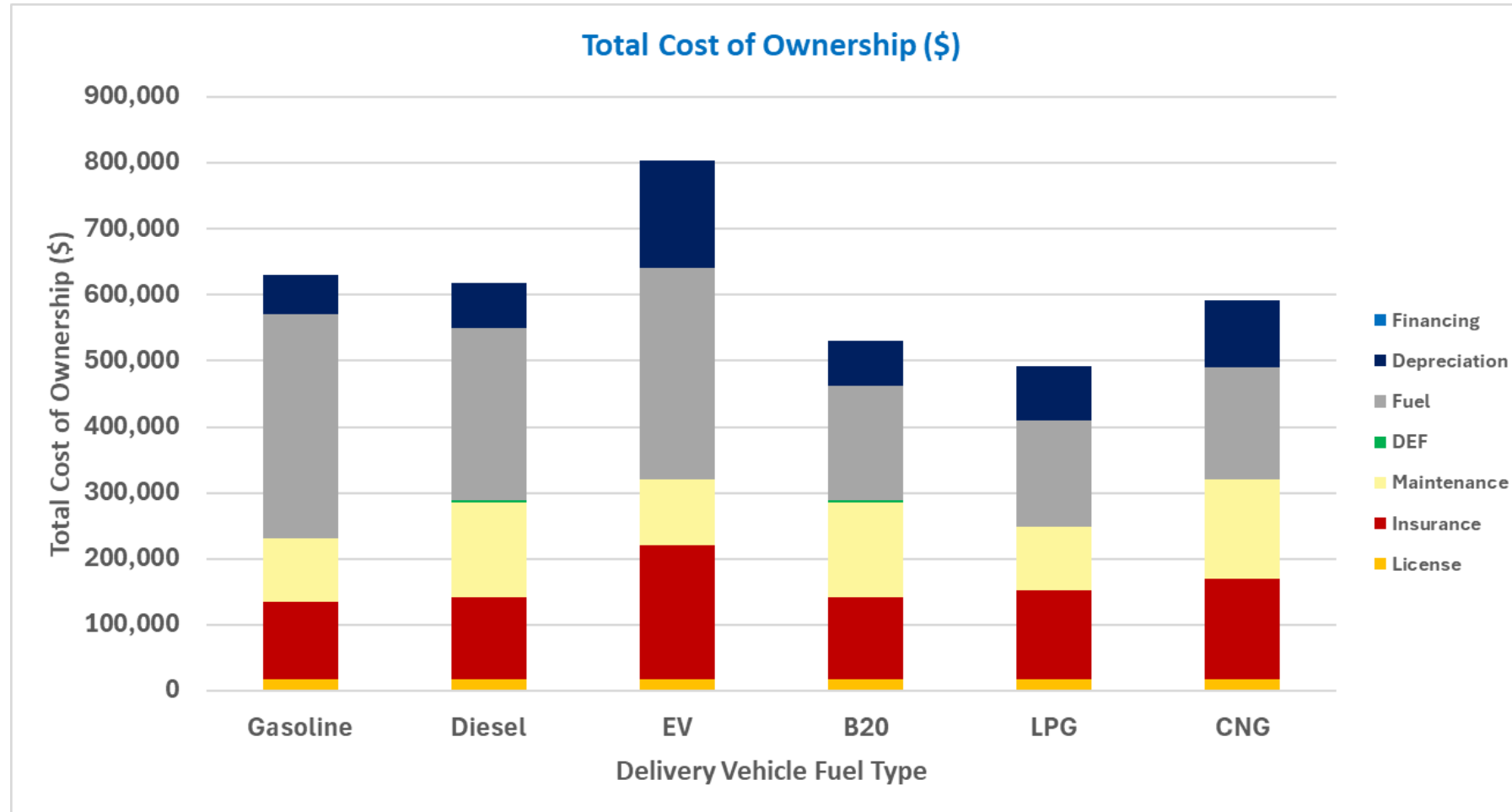
DIESEL EMISSION SYSTEM



CURRENT PROPANE AUTOGAS EMISSION SYSTEM



Best-In-Class Total Cost of Ownership



AFLEET Tool

Real-World Savings At Scale



Budget impact

	Propane Gallons	Gasoline Equivalent (85%)	Savings	AAA Avg cost
2015	1,226,048	1,042,141		\$2.52
2016	1,415,286	1,202,993		\$2.25
2017	1,474,924	1,253,685		\$2.52
2018	1,571,064	1,335,404		\$2.81
2019	1,516,090	1,288,677		\$2.69
2020	681,890	579,607		\$2.25
2021	610,144	518,440		\$3.10
2022	778,985	662,137		\$4.05
2023	653,000	555,050		\$3.63
2024	1,068,038	907,832		\$3.29
2025	1,190,616	1,012,024		\$3.04
Total Gallons	12,186,085	10,357,990	-1,828,096	
Total Cost	\$16,295,805.80	\$29,382,328.19	\$13,086,522.38	
Cost per Gallon	\$1.34	\$2.84	\$1.50	
Alternative Fuel Tax Credit	(\$4,348,918.98)	0	(\$4,348,918.98)	
Total Net Cost	\$11,946,886.82	\$29,382,328.19	\$17,435,441.37	
Net Cost per Gallon	\$0.98	\$2.84	\$1.86	

PROPANE SAVINGS WITH AFTC

\$17.4M

Total net savings vs.
gasoline (2015–2025)

\$1.86 / gal

Net savings per gallon
(\$0.98 vs. \$2.84)

65% lower

Net cost per gallon vs.
gasoline

PROPANE SAVINGS WITHOUT AFTC

\$13.1M

Total net savings vs.
gasoline (2015–2025)

\$1.5 / gal

Net savings per gallon
(\$1.34 vs. \$2.84)

53% lower

Net cost per gallon vs.
gasoline

Slide courtesy of Paul Strobis, Broward County Transit
(ACT Expo, 2026)

Propane Autogas Fleets



Available



Affordable



Reliable



Sustainable

Energy Independence In Any Condition

- Independent of the electric grid.
- Reliable supply nationwide.
- Consistent cold-weather performance.
- Available during power disruptions.



Operational Continuity

- Increased fleet uptime.
- No range limitations.
- No facility upgrades required.
- Minimal technician retraining.
- OEM training and support available.



Propane Autogas Fleets



Available



Affordable



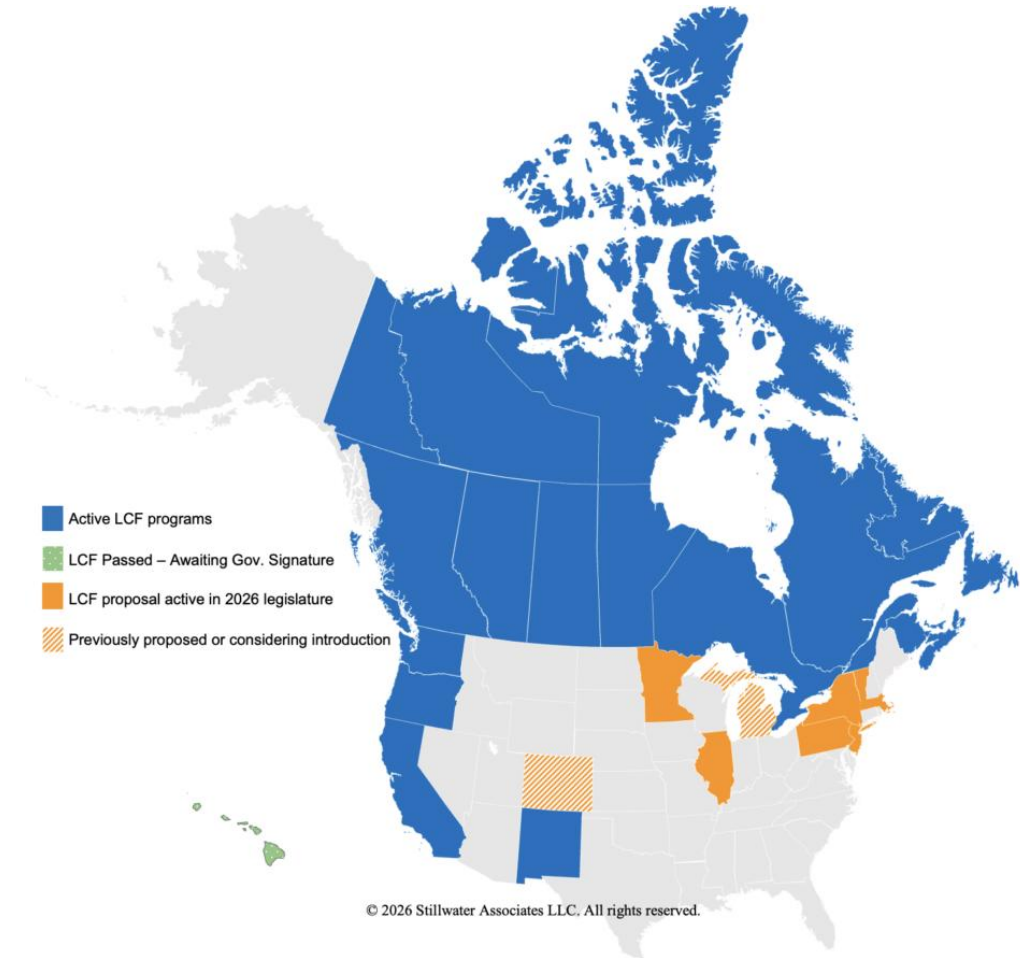
Reliable



Sustainable

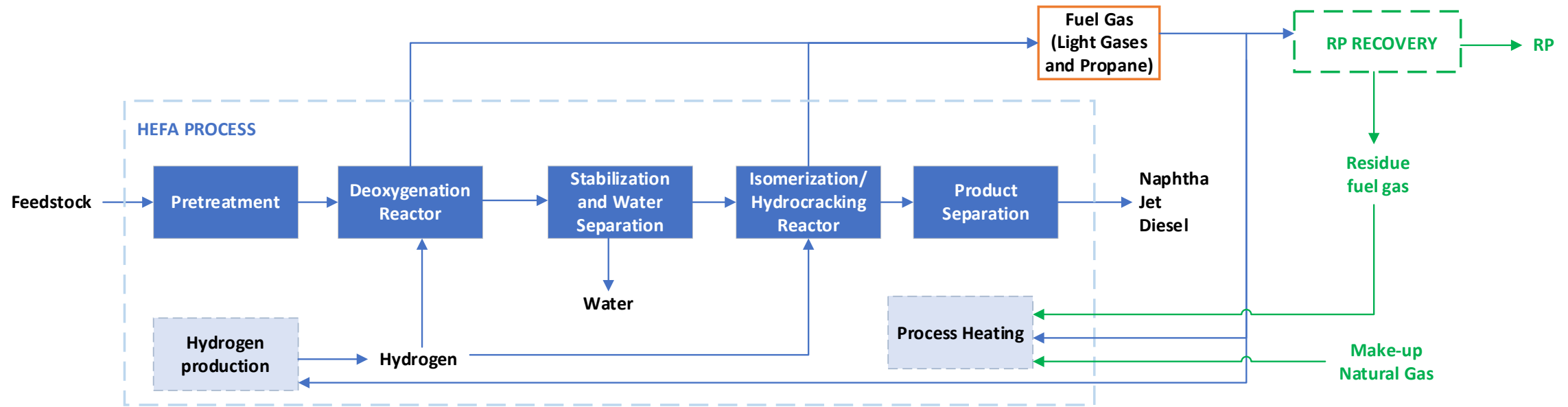
Renewable Propane Introduction

- **Chemically identical** to conventional propane — a true drop-in fuel
- **Bio-based feedstocks:** fats, oils, greases, waste biomass
- **Available today** as a byproduct of renewable diesel production
- **Lower carbon intensity** than conventional fuels
- **Credit-driven markets:** WA, OR, CA, NM (NM allows book-and-claim), and HI
- **No residential / commercial credits yet**



Courtesy: Stillwater Associates
(Caveat: HI LCFS is enacted)

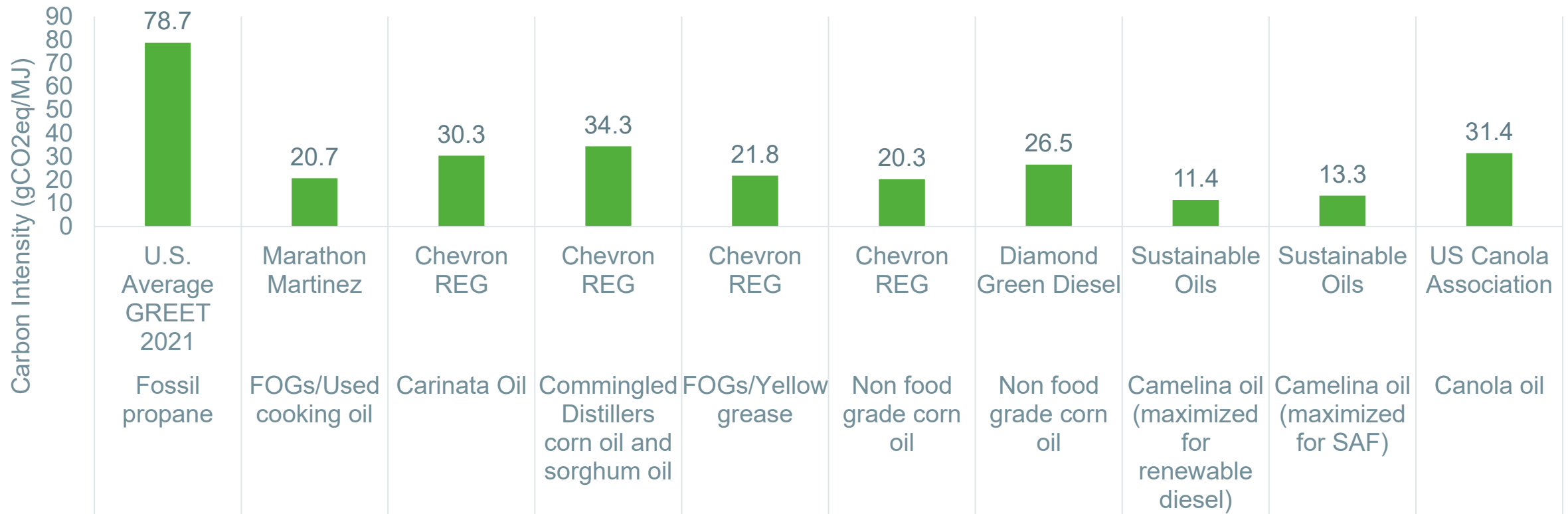
Basics of Hydrotreated Vegetable Oil (HVO) or Hydrotreated Esters and Fatty Acids (HEFA) Process



Triglycerides → Free fatty acids + Propane

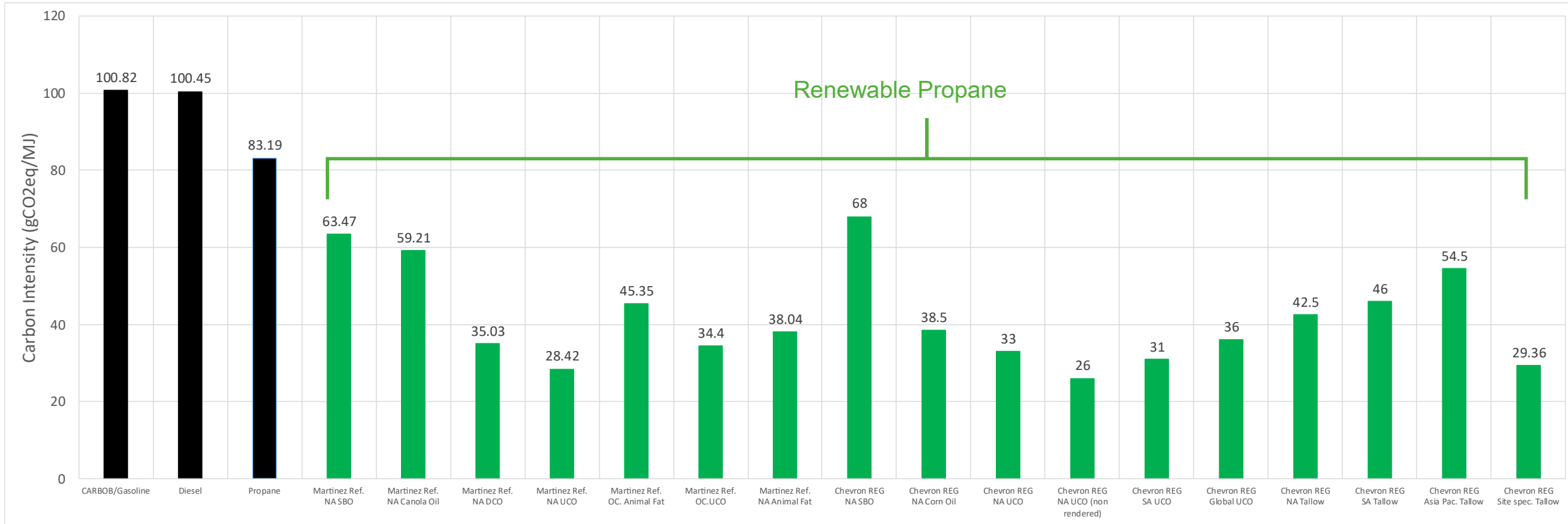
Fuel gas stream (C1–C5) is 5–8 wt.% of process output

Renewable Propane – EPA Approved Carbon Intensities



Source: EPA

Renewable Propane – CARB Approved Pathways



Refinery	Marathon Martinez and Chevron REG Geismar
Geography	NA – North America, SA – South America, OC - Oceania, Asia Pac. – Asia Pacific
Feedstock	SBO – Soybean Oil, DCO – Distillers' Corn Oil, UCO – Used Cooking Oil

Conventional propane: **~17% lower** carbon intensity than gasoline & diesel. Renewable propane: **up to 75% lower**.

Current Production Capacity and Outlook



3.25M gal

sold in 2025 · 3.57M RINs



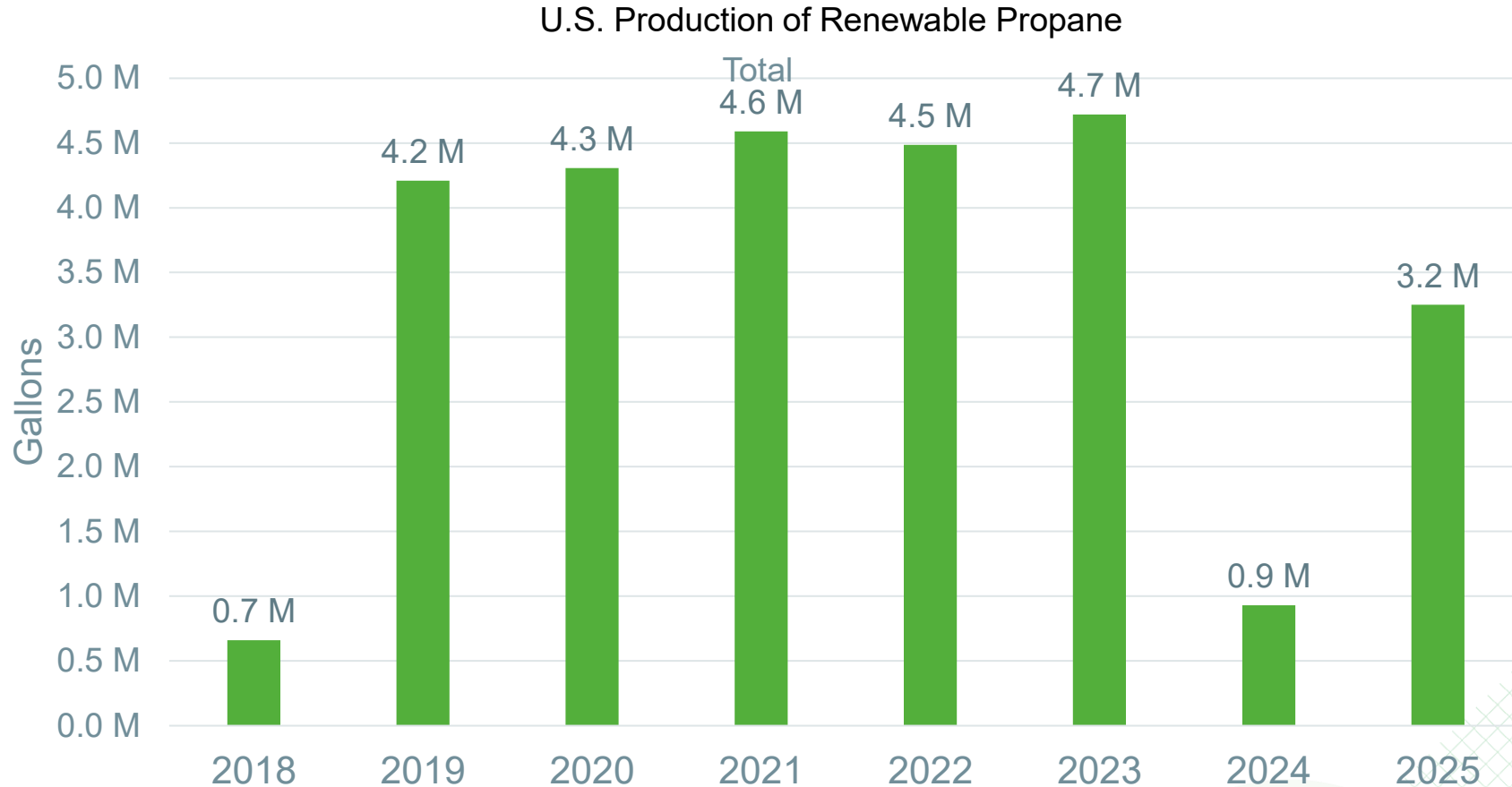
20M gal

projected by end of 2027

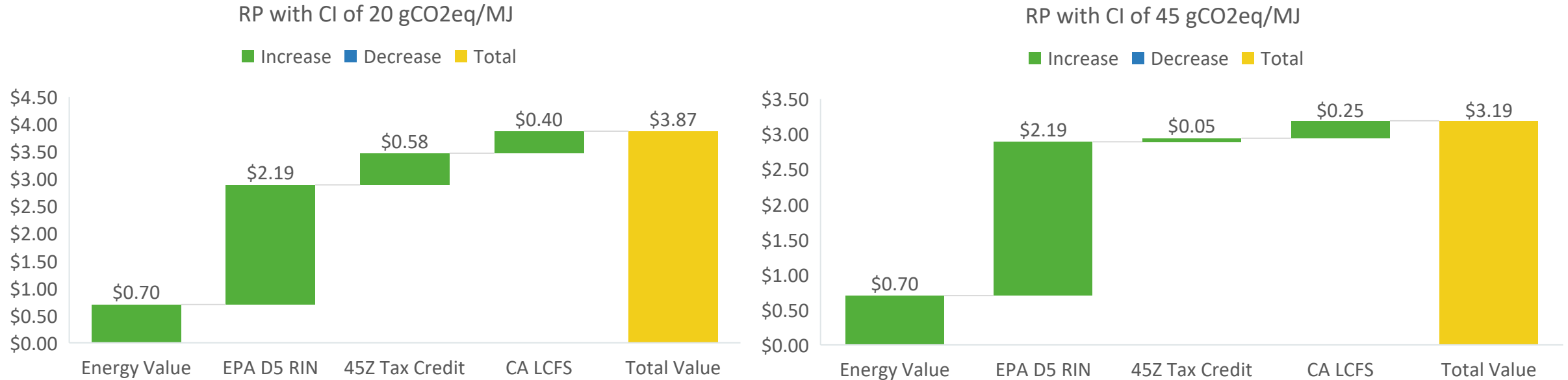


~9B gal/yr

U.S. odorized propane
market



Credit Stacking for Renewable Propane



- Currently available for transportation markets only
- Clean Fuel Standards – CA, OR, WA, NM and HI
- June 2026 — DOE's 45ZCF-GREET model makes most crop-based renewable propane eligible for 45Z tax credits

Path to Near-Zero Emissions

Ultra Low NOx

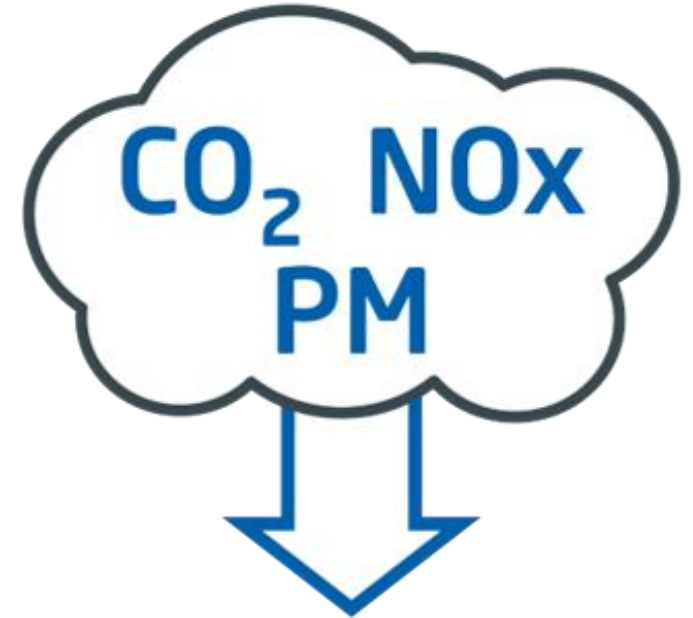
- Engines certified to 0.02 g/bhp-hr
- Below EPA27 threshold of 0.035 g/bhp-hr
- No changes needed to meet EPA27

Virtually zero PM

CO₂ reduction and Renewable Propane options

Simpler and Economical Pathway to achieve EPA27 Emissions Targets

- **No after-treatment complexities**
- **No Non-Conformance Penalties (NCPs)**



Questions?



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Director of Research, Development, and Innovation



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Joel Stutheit

Senior Manager, Autogas Business Development

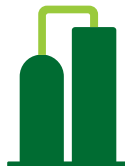


joel.stutheit@propane.com

Renewable Natural Gas (RNG) for heavy-duty trucking

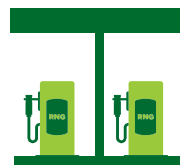
July 21, 2026





RNG Supply

- Dairy/RNG production
- 3rd party RNG supply contracts
- Partnerships with energy majors (Chevron, bp, TotalEnergies, & Tourmaline)



Distribution

- 600+ stations (US & Canada)
- 50,000+ vehicles fueling daily
- 1,000 fleet customers
- Maintenance + construction



Clean Energy

- Vertically integrated RNG fueling solutions
- 25+ years of experience
- Established RNG as a commercial fuel

More than just fuel: turnkey solutions



Station types



Fast-fill station (private or public)

- On the go fleets that don't return to base, sit overnight, and/or fuel on-site
- Vehicles fill whenever necessary at target rate of 10 gpm or as station is spec'd



Time-fill station (private)

- Return to base operation where each truck connects to an individual hose
- Trucks fill simultaneously until all are full

RNG stations



San Bernardino, CA



Carneys Point, NJ



Fort Worth, TX

What is RNG?



When organic matter decomposes, it naturally releases methane emissions that we capture and turn into RNG fuel. RNG's emissions are considered "**biogenic**" because they come from a natural biological process.



Landfill



Wastewater



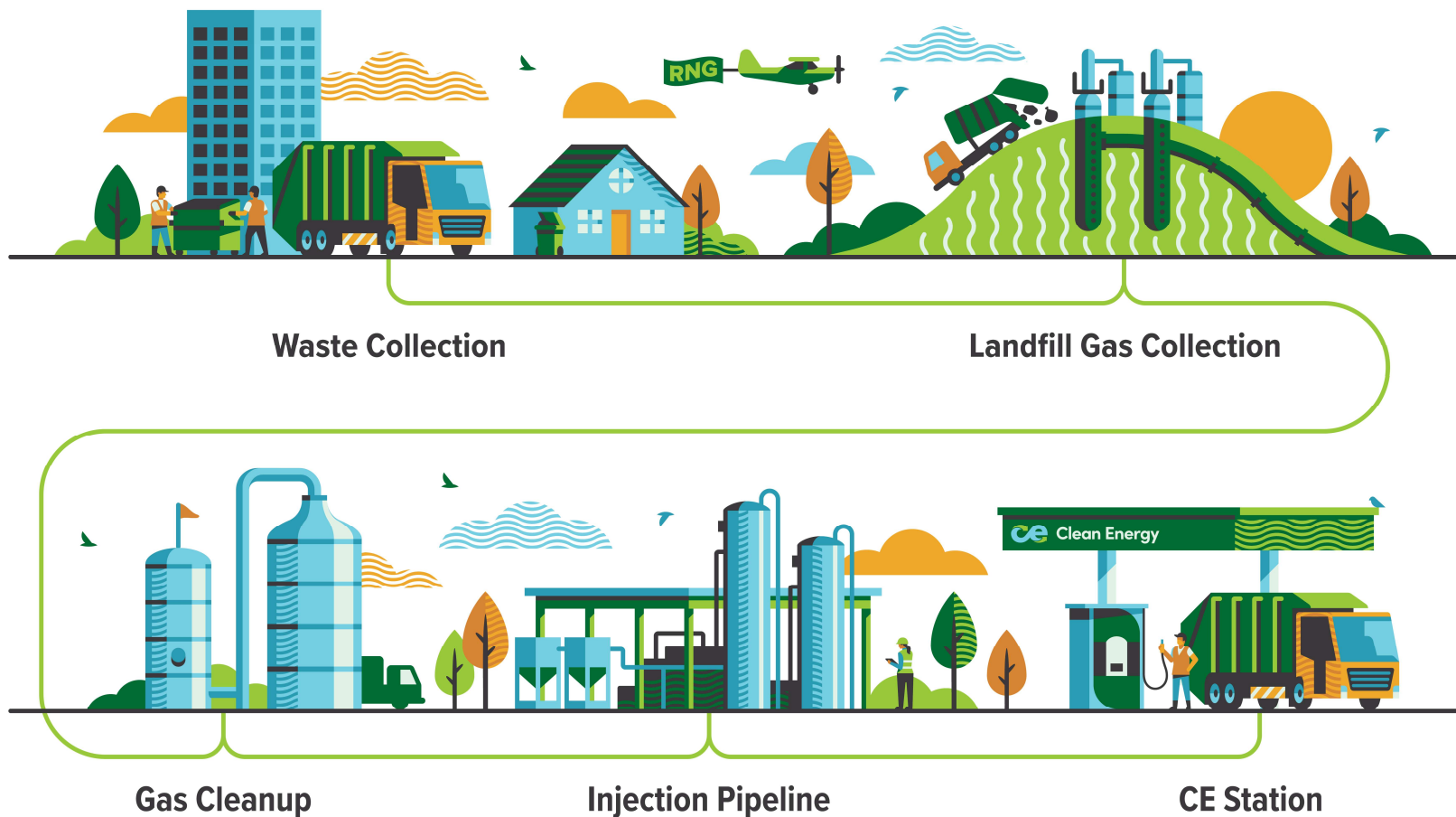
Livestock Manure



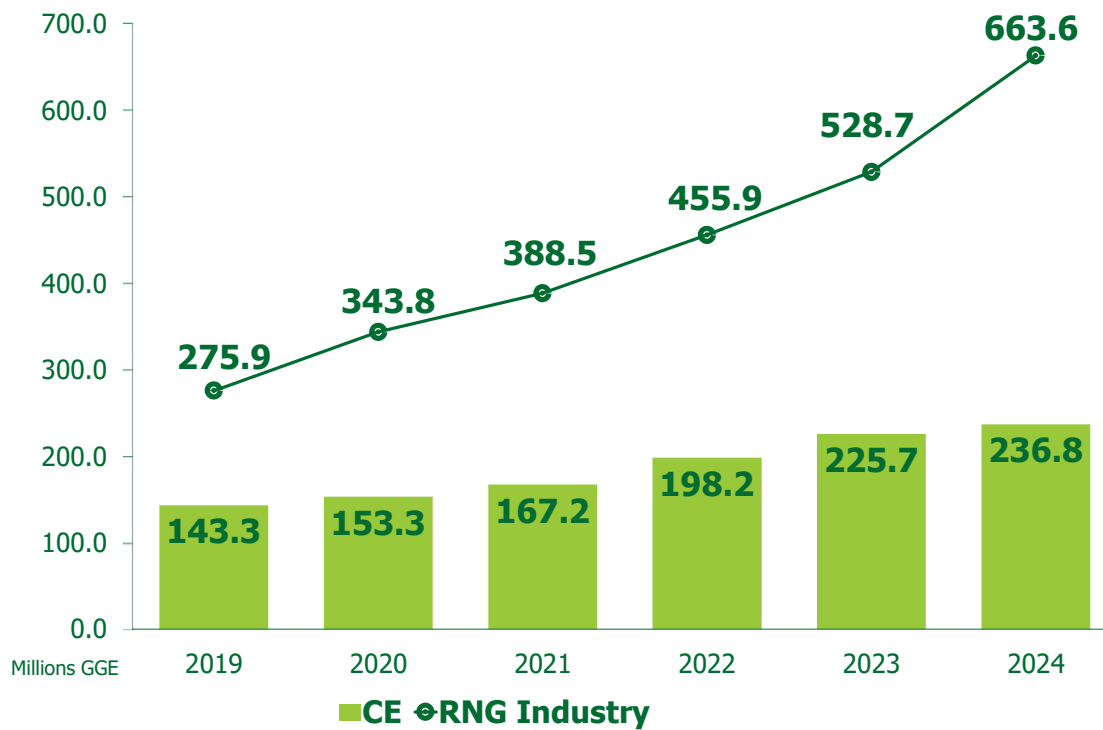
How is dairy RNG made?



How is landfill RNG made?



RNG market volume



Production volume by feedstock



67%
MSW



24%
AG waste



5%
Food
waste/SSO



4%
Wastewater

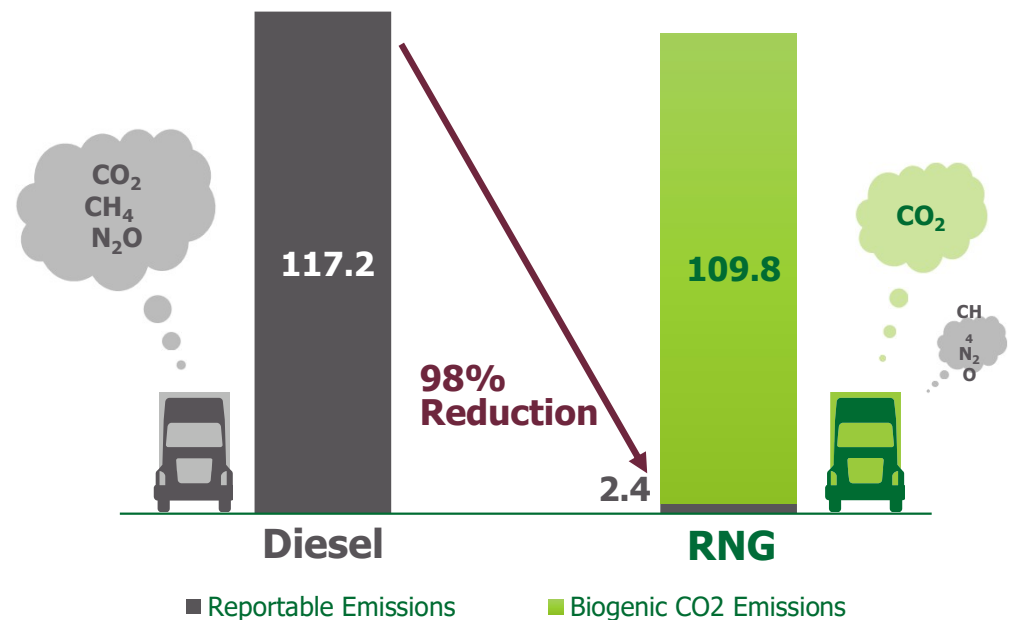
Reducing Scope 1 and Scope 3 emissions



Tailpipe emissions still occur with RNG, but because the CO₂ emissions are **biogenic**, they are reported outside Scope emissions.

This is how RNG reduces the Scope 1 emissions of the carrier and the Scope 3 emissions of the shipper.

Emissions reporting breakdown (MT CO₂e)



Annual emissions for a truck that travels 80k miles.
Assumes 20% fuel economy difference: diesel @ 7.5 mpg vs RNG @ 6.0 mpg.

Why RNG?



Cleaner

As a sustainable biofuel, RNG dramatically reduces carbon emissions vs. diesel.



Affordable

RNG is a domestically produced, stable-priced fuel that costs significantly less than diesel.



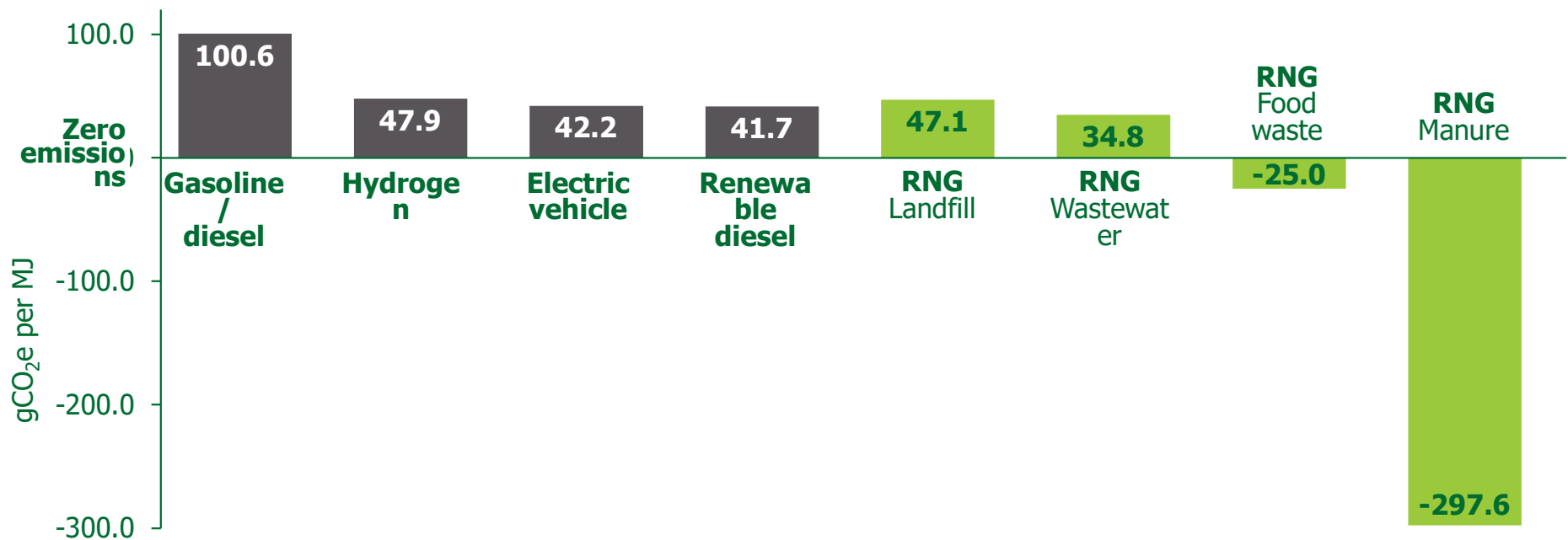
Proven

Engine built by Cummins, supported by major OEMs, and trusted by fleets like Amazon, UPS, and Saia.

Lifecycle emissions

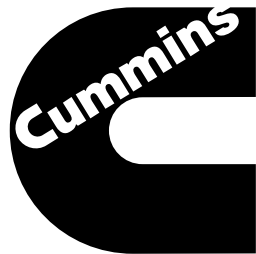


Carbon intensity measures emissions across a fuel's entire lifecycle, which impacts LCFS states like CA.



Note: For gasoline/diesel, hydrogen, electric vehicle and renewable diesel, data represents average CI of delivered fuel. For RNG, data represents average CI score of active certified pathways (version 3.0) to show the different CI scores by feedstock.

Engine



Truck manufacturers



Fuel system providers



Cummins X15N engine



- 15-liter big bore natural gas powertrain
- Available today with Freightliner, Peterbilt, and Kenworth
- 6M miles of pre-production testing & 50,000 engines in operation globally
- Up to 500 hp & 1850 lb-ft of torque
- No DPF, SCR
- Up to a 10% fuel economy/GHG improvement over ISX12N
- 500 lbs lighter than current 15L diesels



RNG fuel systems



- 750+ mile range
- ~2500 lbs.
- 2,000 lb. federal weight exemption
- Fuel system preferred pricing for Clean Energy customers



**CLEAN FUEL
TECHNOLOGIES™**



Total cost of ownership (TCO) for 25 trucks in California



Truck cost



Diesel
X15 2026MY
\$155,000



RNG
X15N 2026MY
\$207,500

Assumptions

Annual miles	65,000
Diesel cost/gallon	\$6.50
RNG/DGE	\$2.50
Trade cycle	6

Payback period

19
months

RNG cost savings*

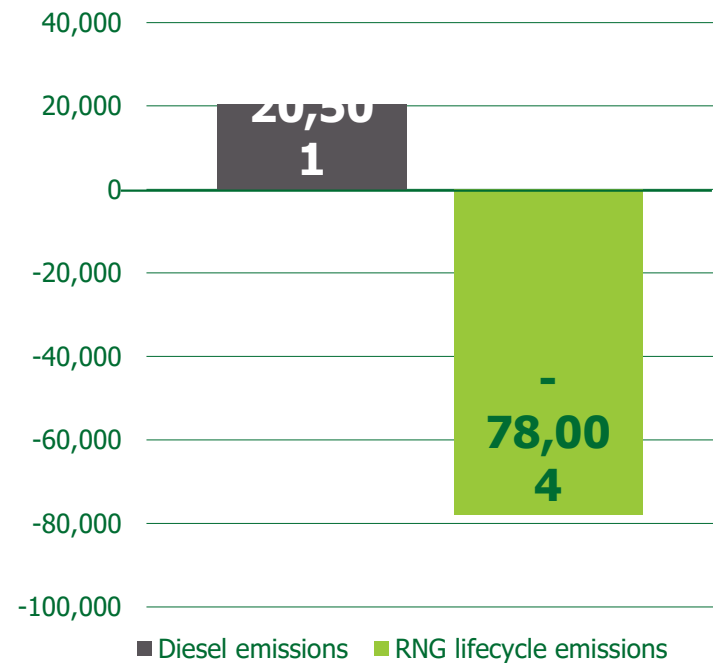

\$3,803,929

Lifecycle emission reduction


480%

RNG lifecycle emissions vs. diesel

25 truck lifespan, MT CO₂e



* Includes truck cost and fuel savings over the term. Assumes 14.3% fuel degradation with X15N (RNG @ 6 mpg vs. diesel @ 7 mpg)

RNG truck incentives and grants



\$30k X15N/2025 RNG truck delivery sales promotion

Grants available in a dozen or more states

Up to \$50k Clean Energy buydown for new California RNG truck & fueling

More info at: cleanenergyfuels.com/hdt



The California RNG Fleet Fund

To help California fleets transition to renewable natural gas (RNG), Clean Energy is incentivizing the purchase of Kenworth T680 and T880 X15N trucks that fuel at our stations.

Receive up to \$50,000 per vehicle with a 5-year Clean Energy fueling agreement for 12,000 gallons annually. The incentive amount, associated gallons, and term can all be scaled down, as desired.

Sustainable
Clean Energy provides negative carbon-intensity RNG at all our participating California stations.

Affordable
Pay as low as \$3 per gallon of RNG with flexible discount structures and fuel card payment options.

Convenient
Our statewide fueling network includes 20+ fast-fill, tractor-trailer friendly stations throughout California.

Measurable
We'll provide customers with annual reports on their carbon intensity and emissions reduction.



Texas Commission on Environmental Quality (TCEQ)

TERP Alternative Fueling Facilities Program (AFFP)

Date: January 21, 2026
Program budget: \$12M total
\$4M set aside for CNG/LNG



Eligible projects:

- Construction or reconstruction of an alternative fueling facility. Reconstruction is defined as the expansion of a site to provide a new and different alternative fuel that does not exist at the site.
- Project must be in the 48 counties making up the Clean Transportation Zone (CTZ).
- Alternative fuel types include CNG, LNG, CNG/LNG combined, hydrogen, electric, propane, etc.

Eligible applicants:

- Individuals
- State and local governments
- Corporations
- Other legal entities

Funding amounts:

Project type	Funding cap per project
CNG or LNG	Up to \$400,000
CNG and LNG combined	Up to \$600,000
Other alternative fuels	Up to \$400,000 or 50% of the total eligible project cost

Contact us to learn whether your fleet operations qualify for grant opportunities. We can even help you apply.

Leanne Harbale
Superior Grants
leanne.harbale@cleanenergyfuels.com

This representation on this website and the data on the funding table are for informational purposes only. The funding amounts represent a general estimate of the maximum award amount and should not be used to determine the actual award amount that will be determined upon submission by the agency.



SALES PROMOTION: X15N | 2025 RNG Truck Delivery



Rebates Available

PARTNER	PROMOTION	VALUE
Cummins	Per Truck Discount and +3y/100 GKI Warranty	\$9,750
Clean Energy	Per Truck Rebate	\$10,000
Hexagon Agility	Per Truck Rebate	\$6,000
OEM	Per Truck Rebate	\$5,000
Total Promotional \$		\$30,750

Savings Potential

Truck – Incremental Market Price	\$100,000
Total Rebate Value	\$30,750
Net Estimate Cost (Post-Rebate)	\$69,250

Applies to truck orders of 10 or more units, delivered in 2025 to X15N fleet customers. In addition to Clean Energy Rebate, fleets will receive access to Preferred RNG Fuel Pricing Program. Hexagon Agility Rebate based on 75% DGE Fuel System (back of cab). Cummins Clean Fuel Technology fuel system available for comparable per truck rebate.

Program estimated to run through December 2025. Cummins reserves the right to review, modify or cancel the program at any time. Not applicable to previously invoiced/trail units.

Station infrastructure in California



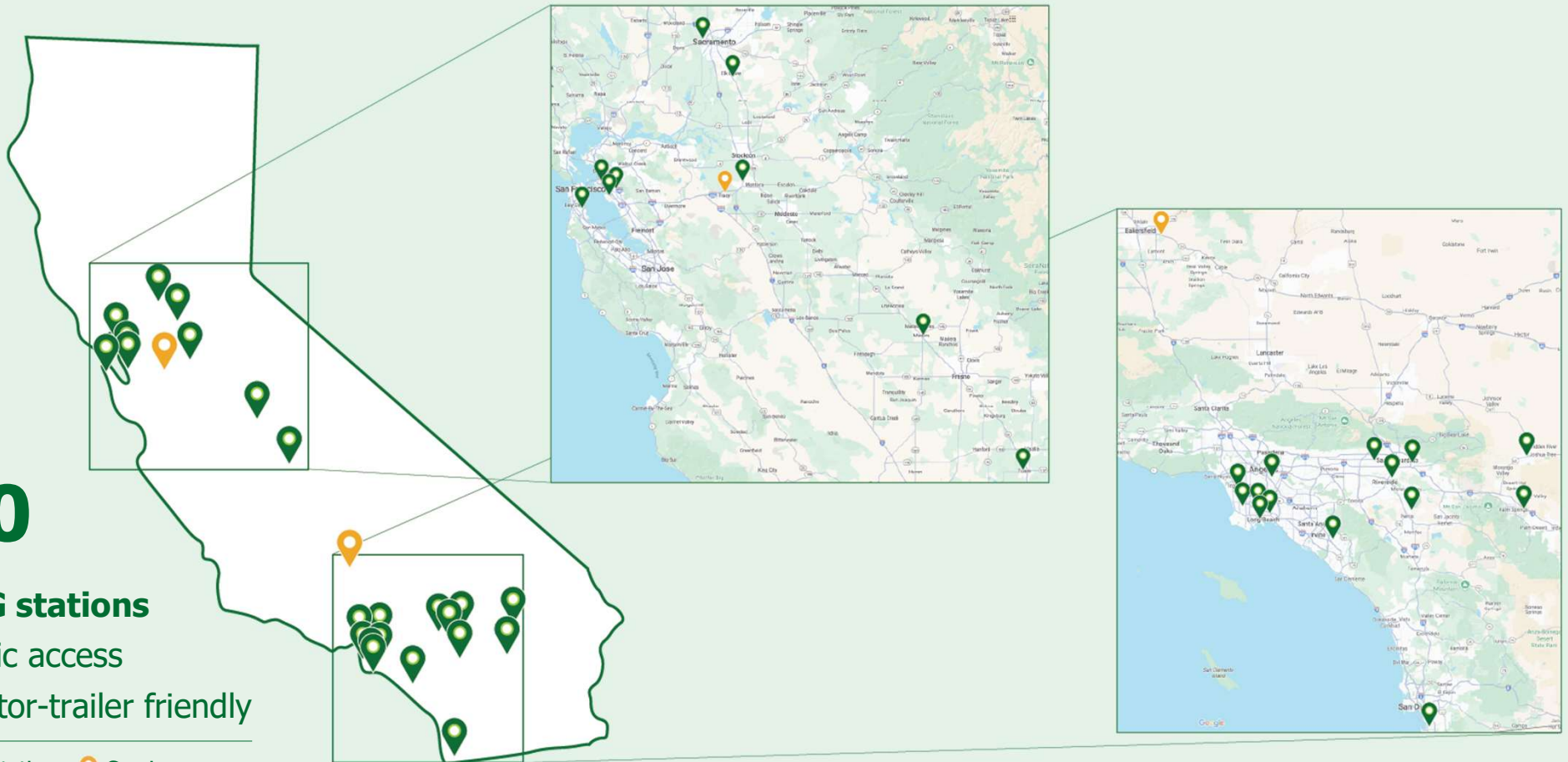
20

RTG stations

Public access

Tractor-trailer friendly

📍 CE station 📍 Coming soon



Our station infrastructure



600+

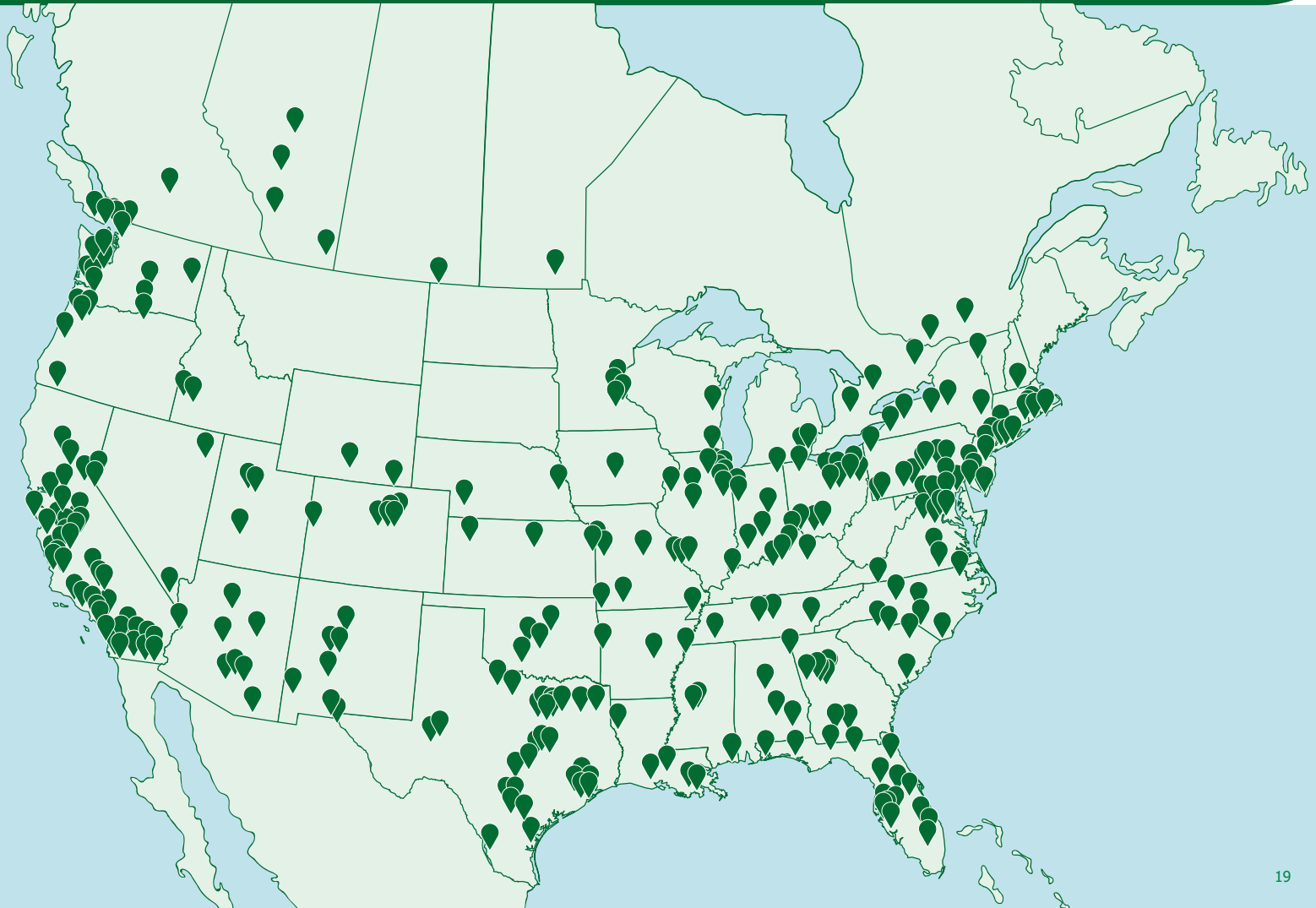
Public & private
fueling stations

100+

Tractor-trailer friendly
public stations

50k+

Vehicles fueling daily



Clean Energy's X15N demo truck program



- Freightliner & Peterbilt RNG day cabs
- Cummins X15N engine
- 175 DGE back-of-cab fuel system
- 2-week trial period
- Fuel at Clean Energy stations



2026 Freightliner Cascadia



2025 Peterbilt 579

Need your own private RNG station?



50 trucks at 600,000 DGE/yr	California	
	CE Capital	Customer Capital
Monthly cost of gas (12-month avg.)	\$1.10	\$1.10
Monthly cost of electricity	\$0.25	\$0.25
CE compression fee, all inclusive O&M	\$1.35	\$0.35
Taxes (federal & state)	\$0.20	\$0.20
Preliminary price per gallon	\$2.90	\$1.90
Carbon credits (avg)	(\$0.70)	(\$0.70)
Total price per gallon	\$2.20	\$1.20

**Station investment estimated at \$3M*

National customers



amazon

CEMEX

KeHE

KNIGHT
TRANSPORTATION

enterprise

RUAN

PTI
PAPER TRANSPORT

Airgas.
an Air Liquide company

FritoLay

Unilever



P&G

FedEx

BIMBO

NFI

REPUBLIC
SERVICES

CALPORTLAND

Electrolux



WASTE CONNECTIONS, INC.

DHL

WM
WASTE MANAGEMENT

US.
FOODS

PRAXAIR

Dean
FOODS

J.B. HUNT

CEVA
LOGISTICS

ESTES

Keurig
DrPepper

MTA

ups

KAG
KENAN ADVANTAGE GROUP, INC.

Kraft

Coca-Cola

M
Metro

SALA

TRANCASA

Hertz

Univar
Solutions



Clean Energy

Shifting carbon into reverse.

REAGAN NOLL

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