WHO IS ADOPTING NATURAL GAS VEHICLES AND WHY

Fleets with long asset lives, scheduled routes, and high energy demands drive adoption and continued growth of this leading clean vehicle technology for fleets.

FLEET TYPES LEADING ADOPTION:



Estimated Medium- and Heavy-Duty NGVs in Operation

TENS OF THOUSANDS

THOUSANDS

WHAT FLEETS ARE SAYING:

CNG vehicles are both mature and near-zero emissions. Leading adopters see consistent and significantly reduced fuel costs and lower total cost of ownership. NGV cost remains the top challenge reported by more than two-thirds of fleets surveyed.



Source: Percent of surveyed early adopter fleets that have either piloted or purchased MD or HD CNG vehicles who cite a criteria as either equal/better or a challenge from the State of Sustainable fleets 2022 survey.

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FUTURE OUTLOOK

2021, the average carbon intensity of all the natural gas reported in the California LCFS was below zero, making NGVs the only carbon-negative transportation option for fleets.

State of Sustainable Fleets 2022 Analysis

"We continue to see renewable natural gas vehicles as the best current solution to meet range, fueling, and emissions reduction requirements."

 Matt Harris, Sustainability Area Manager Wegmans Food Markets, New York



CNG vehicles offered by OEMs, upfitters, or converters producing new-build vehicles

MD AND HD NATURAL GAS VEHICLES (LIMITED TO FULL PRODUCTION)



MD AND HD NATURAL GAS VEHICLES (ANNOUNCED TO ACTIVE DEMONSTRATION)

Body Type	Timeframe		Number of N	odels Available			Vehicle Manufacturers	Upfitters & Converters
YARD TRUCK	Undisclosed	1					Capacity	N/A
		0	5 1	0	15	20		

As of March 2022. More detail in the 2022 Market Brief, available at www.stateofsustainablefleets.com

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STARTING OUT WITH NATURAL GAS VEHICLES

1-2 MONTHS

05

1 MONTH

Transitioning from diesel or gasoline to natural gas vehicles can not only improve your bottom line but provide substantial environmental benefits for your fleet. Coordination and planning are key to ensuring success.

01 - EVALUATE FIT FOR NGV

Review the types of vehicles you operate and the fueling needs of the fleet, including daily range, fueling (depot or on the road), and special duty cycle needs. Higher mileage, high fuel consumption vehicles are a strong fit for natural gas and faster payback on investment in vehicles.

> **02** 1-2 MONTHS

03 – IDENTIFY CURRENT AND FUTURE PUBLIC FUELING OPTIONS

Ample retail natural gas fueling near your fleet base and along service routes likely already exist. Use online fueling databases such as **Penske's Alternative Fuel Station Locator** or work with fuel retailers to identify existing or planned stations that provide natural gas transportation fuel. The gas utility may also know if there are any plans to build other stations nearby that could be accessed.



02 – CONTACT TRUCK SUPPLIERS AND DEALERS

A variety of light, medium, and heavy-duty natural gas vehicle offerings are commercially available and scalable today from a number of popular truck manufacturers and suppliers. Some light- and medium-duty vehicles can only be delivered through aftermarket or qualified vehicle upfitters, which can usually be ordered through traditional truck OEM dealerships.

04 - EVALUATE FIT FOR ONSITE FUELING

Time fill is less costly but slower, typically best for overnight or between shifts. Fast fill is fast, around 10-15 minutes, but more expensive. Work with fueling providers to evaluate these options or even portable fueling for smaller fleets. Your local gas utility can determine the level of service and pressure used to identify equipment needs and costs. Ask about RNG options.

+ 6-12 Months for design, permitting, construction

05 - FUNDING AND FINANCING

Natural gas trucks can cost between \$10.000 and \$45.000 more than comparable disel vehicles depending on size. Numerous state and local grants, rebates, and tax credits are available. Many fueling providers and OEMS also offer innovative financing options that package vehicles with fuel services.



FEATURED RESOURCE



The Cummins website offers fleets natural gas resources including a fuel quality calculator and a greenhouse gas emissions calculator.



06 Manin numa you c rangi

06 - ORDERING NATURAL GAS TRUCKS

Many OEMs and their dealerships offer CNG vehicles across numerous vehicle types and weight classes. A dealership will help you customize your fuel system for the vehicle, which depends on range requirements, before ordering from the system installer.

TOTAL PROJECT TIMELINE: 8-17 MONTHS

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FUNDING AND INCENTIVES STEPS FOR NATURAL GAS VEHICLE PROJECTS

The pathway to securing incentive funds is rarely a straight one. Natural gas vehicle projects that have the greatest chance of long-term funding success must be carefully planned in a strategic manner in order to win in a highly competitive funding landscape.

GET A HEAD START

Developing a new clean vehicle project akes time much longer than the 30 days most funding programs provide to apply. Putting together a successful funding application and deployment project requires significant planning and strategy development well in advance of the release of a grant program solicitation.

MATCHMAKING

To maximize funding opportunities, applicants must understand what other grant funds are available to match against the specific program to make the most out of funding opportunities. Match funding can significantly increase the TCO for a project.

PREPARE TO REPORT

While it's tempting to think of grant funds as "free money," there are almost always complicated long-term reporting requirements that accompany receipt of public agency grant funding. Oftentimes the costs to prepare the required annual, quarterly, or monthly reports can be included in the grant request.



The world of incentives is dynamic and ever-changing. To stay on top of the information, you need a team capable of uncovering accurate intelligence. Specific provisions are buried deep within the solicitation that can be easy to miss without the right experience.

CALL AN EXPERT

The State of Sustainable Fleets sponsors and GNA, the author of the report, are experts in the industry and can provide additional support to plan for and secure funding.

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you apply.

your goals. No matter how perfect a project is, it

may not win if it does not help the agency meet

its own agals. Thoroughly review and understand

a program's goals and scoring criteria before

Building a CNG Maintenance Program



A note from Cummins

Maintenance is a lynchpin of fleet success with CNG. Effective maintenance programs have a few common elements:

• Designed for the Specific Engine and Fleet

Fleet maintenance for CNG is different than for diesel engines. Each fleet must adapt the Cummins owner's manual for their engine into the fleet's own schedule, practices, and systems.

Active Employee and Vendor Engagement

Incorporate CNG material into training for lead drivers, technicians, fuelers, etc. Schedule weekly meetings with fleet teams for troubleshooting. Schedule orientations with supplier partners (OEM, Cummins, fuel system provider, and fuel provider).

Daily Oil Inspections

Check before starting the engine and 20-30 minutes after shut-down. Checking immediately after engine shut-down can lead to overfilling. Drain on-engine fuel filters, if equipped.

Adherence to the Maintenance Schedule

- Use engine hours and not miles. Idle time counts toward the maintenance schedule.
- OUpdate Engine Control Module (ECM) when new calibrations are available.
- Replace/adjust components before their end of life.
- Follow Cummins troubleshooting processes in the event of an unscheduled service event.

Use of Genuine and Recommended Parts

Ensure spark plugs, filters, and all other components have been validated to meet design standards and that engines meet or surpass emissions certification. Only approved engine oil (CES 20092) provides protection at the high temperatures experienced in natural gas engines.

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LOOK TO THE EXPERTS

The 2022 sponsors represent the industry's leading experts in clean vehicles, technologies, and fuels. When implementing, transitioning, or scaling your fleet's clean vehicles and technologies, be sure to look to these leaders for guidance.

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ABOUT THE NATURAL GAS VEHICLE MINIGUIDE

This fleet miniguide was created to serve as a concise resource for fleet owners and operators navigating natural gas vehicle technology.

For more information on the latest trends and data driving all sectors of clean vehicle technology, download the 2022 State of Sustainable Fleets Market Brief.