

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

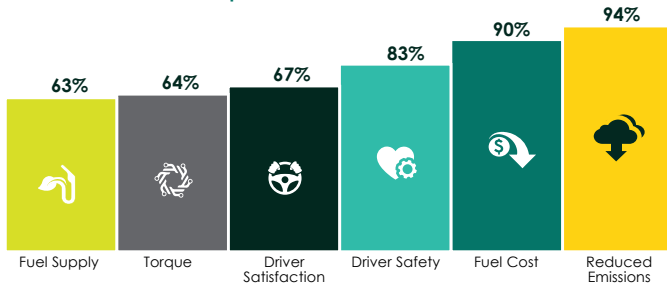
TENS OF THOUSANDS

THOUSANDS

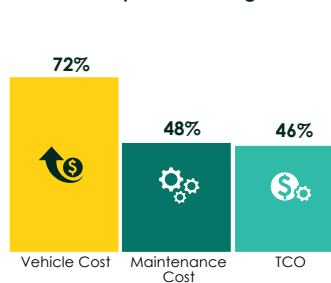
WHAT FLEETS ARE SAYING:

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.

Equal or Better Performance



Adoption Challenges



Source: Percent of early adopter fleets that have either piloted or purchased CNG vehicles surveyed who cite a criteria as equal/better or a challenge from the State of Sustainable Fleets 2021 survey.

FUTURE OUTLOOK

Nearly 90% of CNG users surveyed intend to use renewable natural gas (RNG) in the next year. The carbon intensity of California's RNG will continue to drop for the foreseeable future.

State of Sustainable Fleets 2021 Analysis

"CNG has been a nice fit for our regional fleet. As technology advances, it is getting easier to integrate into our operations. Key for us and anyone getting into CNG is you have to go all in to get the maximum benefit of this alternative fuel. If you just experiment with a few vehicles, you will never be able to make sense of it."

— Curt Reitz, President
Contract Transport Services LLC,
Wisconsin



STARTING OUT WITH NATURAL GAS VEHICLES

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.

01

1-2 MONTHS

02

1-2 MONTHS

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.

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.

03

1 MONTH

04

1-2 MONTHS

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 \$65,000 more than comparable diesel 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.

05

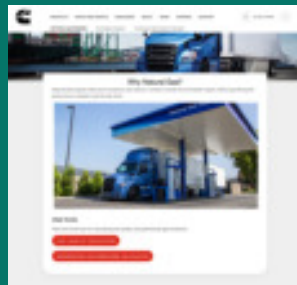
2-4 MONTHS

06

2-4 MONTHS

FEATURED RESOURCE

CUMMINS NATURAL GAS PAGE



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

VISIT

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

(Many steps can overlap and be concurrent.)

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

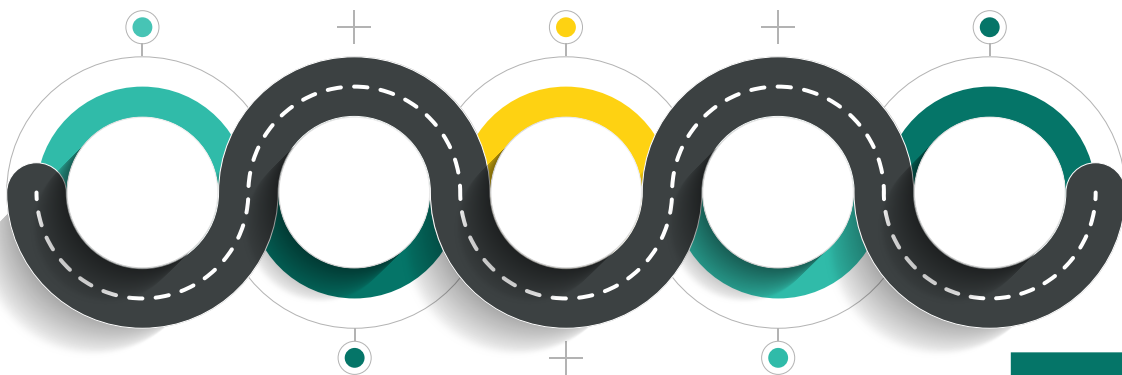
Developing a new clean vehicle project takes time — much longer than the 30 days most funding programs provide to apply. Putting together a successful funding application and deployment project requires significant planning and strategy development well in advance of the release of a grant program solicitation.

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.



COMPETE TO WIN

Funding agency goals may not be the same as your goals. No matter how perfect a project is, it may win if it does not help the agency meet its own goals. Thoroughly review and understand a program's goals and scoring criteria before you apply.

RESEARCH PAYS OFF

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.

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.
- Update 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.



LOOK TO THE EXPERTS

The 2021 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 [2021 State of Sustainable Fleets Market Brief](#).