

Natural Gas Vehicle Training Requirement

Issue:

There is an increasing use of natural gas vehicles being used across North America, however as natural gas is a gaseous fuel and has unique fuel systems that are unfamiliar to traditional technicians, adequate training is required for cost-effective, efficient and safe maintenance and repair of natural gas vehicles.

Background

Fleet owners across North America are switching to natural gas for their truck and bus operations due to the power and performance similar to diesel engine technologies coupled with the benefits of natural gas vehicles. Some of the benefits include¹:

- Fuel cost savings of up to 30% to 40% per kilometer
- Reduced greenhouse gas emissions by 20% to 25%
- Lower levels of air pollutants and air toxics
 - 90% reduction in Carbon Monoxide
 - 50 % reduction in Nitrogen Oxide (NOx)
 - 75% reduction in non-methane hydrocarbons (NmHC)
- CNG is non-toxic, non-carcinogenic, non-corrosive
- Natural gas vehicles comply with the 2016 emission standards
- Ability to operate on renewable natural gas for near-zero emission performance
- Quieter vehicles providing less noise in urban settings
- Mature engine technologies providing required power, torque, and reliability

More than three decades of technology development means that natural gas vehicles are ready-to-go and able to meet the demands of day-to-day fleet operations.

However with this transition to natural gas vehicles (NGV) comes a requirement for advanced education and training. As natural gas is a gaseous fuel, rather than a liquid, it behaves differently than liquid fuels. Additionally, all natural gas vehicles have unique fuel systems from their gasoline or diesel counterparts. CNG vehicle fuel systems operate at high pressures (3,600 psi), while LNG vehicle fuel systems use cryogenic fuels (-260°F). Both types of NGV fuel systems are unfamiliar to traditional technicians and the key to performing safe, efficient and cost-effective maintenance and repair of natural gas vehicles is adequate training.

Work is already underway in Canada to establish a national training program for natural gas vehicles and courses should be accessible at local technical and community colleges, as well as through natural gas

¹ <http://www.gowithnaturalgas.ca>

service providers. However there is currently very limited access to certification within Canada with most NGV personnel requiring training from the United States. There are some existing training courses available including Toronto-based Centennial College's Internal Combustion Alternative Fuel Vehicle Technician for Natural Gas course. In the U.S., NGVi offers courses on a range of subjects including CNG System Inspector, Driver and Technician Safety Training, and CNG Fueling Station Operation and Maintenance.

Compressed natural gas (CNG) and liquefied natural gas (LNG) fuel safety as well as vehicle and station operation, inspection, and maintenance should be included in the scope of programs considered in Canada and should be applicable to not only fleet owners and personnel, but also to emergency first responders. Course content should look at the following:

- i. Awareness – Natural Gas for Transportation General Knowledge and Safety Practices
- ii. Vehicle Service – Light Duty Road Transportation
- iii. Vehicle Installation – Light Duty Road Transportation
- iv. Vehicle Service – Heavy Duty Road Transportation
- v. Vehicle Inspection – CNG & LNG Tanks
- vi. Vehicle Inspection – Hoses, Tubes & Fittings
- vii. Awareness – Natural Gas for Transportation Dispenser Stations (CNG, LNG)
- viii. Station Inspection – Natural Gas for Transportation Dispenser Stations (CNG, LNG)
- ix. Station Service – Natural Gas for Transportation Dispenser Stations (CNG, LNG)
- x. Awareness – Fleet Management

If Alberta was an early adopter of providing the necessary certification and training, we would also see an influx of personnel from other provinces coming to Alberta for NGV training due to the lack of national access to this type of programming.

The Alberta Chambers of Commerce recommends the Government of Alberta:

1. Work with industry and training institutions to develop certification and training through the Alberta Apprenticeship and Industry Training System for Natural Gas Vehicle Certification program(s).
2. Provide education grants to schools seeking to establish or grow programs that support alternate fuels education programs
3. Work with CSA Group (formerly known as the Canadian Standards Association) to develop and harmonize standards for Natural Gas Vehicle certification and develop a defined set of competency criteria that assesses and evaluates skills and experience in Natural Gas Vehicle servicing, inspection and management.