A man with a plan

Roger Gordon believes ammonia gas could provide a cheap alternative fuel... now he just needs others to agree

Story and photos by Ted Brown

From the moment the first motorized vehicle was no more than a concept in some inventor's mind, one of the first questions that came to light was "What can we use for fuel?"

At that time, the internal combustion motor was in its infancy, and gasoline became the logical choice— it was available, and cheap.

But as the years have gone by, gasoline is no longer cheap, and equally forward-thinking inventors have wondered if it's possible to make a vehicle run on some entirely unlimited, alternative cheap fuel source— like water, or even air.

As unattainable as that dream might seem, a Glen Williams man has been working on a similar project for almost four years, and has in fact made it work.

Roger Gordon has created the technology to make a vehicle run on ammonia gas, by taking water and air, putting them through a process, and coming up with NH3, or ammonia gas.

The resulting gas is transferred into small tanks, which are then connected to his pickup truck, which he has converted to use either gas or NH3, with the touch of a button.

"It's a similar principle used on a vehicle that is equipped for propane. I have an electric control in the cab. I can switch from NH3 to gas by pushing a button on the dash," says Gordon.

So why would anyone bother with using NH3 when one can already equip a vehicle with propane?

"One of the advantages of NH3 is the fact ammonia contains no carbon and releases no greenhouse gases," says Gordon, "Natural gas emits greenhouse gases. Now natural gas might be a bit cleaner than gasoline, but it still releases greenhouse gases in significant quantities. Besides, one day natural gas will run out but ammonia can always be manufactured."

NH3 fuel can be incredibly cheap to produce as well, says Gordon, especially if one uses a sustainable power source, like wind turbines, to power the technology that creates the NH3 gas from the air and water.

"Ammonia can be made from air, water and a source of energy," says Gordon. "Nitrogen from the air, and hydrogen from the water— it's that simple."

But he admits the first question most people ask is 'How dangerous is ammonia?'

"All fuels and energy sources have some potential hazard associated with them," said Gordon. "But ammonia will not explode like gasoline, natural gas or hydrogen. In fact, it's difficult to get ammonia to burn, even though it makes an excellent fuel for cars and trucks.

"Ammonia vehicle fueling and storage takes place safely without any human access to the ammonia liquid or gas, just like the fueling process for natural gas vehicles.

"Ammonia is classified as a caustic substance, which means inhaling it or getting it on your skin isn't healthy," added Gordon. "But overall, it's not as dangerous as gasoline."

Gordon also maintains that since the NH3 fuel can be manufactured close to where the vehicles are being refueled, the danger of fuel spills, like tanker trucks or rail cars, is dramatically reduced.

Having a background in medical and pharmaceuticals, Gordon more or less 'stumbled' on to the idea, and tried a number of different approaches to creating NH3, until it worked. Having managed to make the concept work , extracting NH3 from water and air, Gordon's next challenge was to make it work in the vehicle.

"The use of ammonia as a fuel is nothing new," said Gordon. "I've talked to quite a few people who have been experimenting with it for years, one guy was playing with it back in the 1980s.

"They've come a long way using NH3 now," continued Gordon. "And now it's a whole lot easier with the use of computerized (fuel) systems."

Gordon says the operation (using NH3 in a vehicle) is quite simple, but still requires a tiny bit of gas, for 3 to 5 seconds, to 'trick' the ammonia into igniting, when he starts his truck. After that, it runs like a gasoline-powered vehicle on the NH3 fuel.