Hydrogen And HCNG ICE Vehicle Testing

HCNG Vehicles
- 2000 Ford F-150 up to 30% HCNG Blended Fuels
  Factory HCNG engine, 5.4L V8, 250 horsepower
- Supercharged, shrouded, and exhaust gas recirculation
- Onboard hydrogen storage (factory-fitted fuel cell tanks, 3,000 psi, 84L capacity)
- Fuel testing: 35.75 miles / 109.2 H2 (32.5 miles/GGE, 30% HCNG - 22.5 miles/GGE)
- 2001 Ford F-150 up to 50% HCNG Blended Fuels
  SVO heads, exhaust intercooler, supercharging, exhaust gas recirculation, and ignition retardation
- Onboard hydrogen storage (3 hydrogen-rated fuel storage tanks, polymer liner, carbon fiber reinforced), 200 psig, 30 Btu/hour
- 1998 Dodge Van with 15% HCNG Blended Fuel
  5.9L V8 equipped from factory with no modifications, 150 horsepower
- OEM: 3,500 psi fuel tanks
- Fuel testing: ~71.0 miles

APR Fleet
- Arizona Public Service Utility Meter Reader Fleet
- Bi-fuel CNG/gasoline conversion base vehicles (GM, DC)
- Normal operation at 55% HCNG for study
- No maintenance or operational issues over 1,000 fueling events and 190,000 miles using 10,600 GGE or 15% HCNG

Public Fleet
- Private and public conversions
- Includes OEM and modified fuel vehicles normally operating on gasoline or CNG
- Reported overall savings of 20% in fuel costs
- One vehicle experienced catalytic converter failure and one operator experienced poor engine performance (withlows)
- 38 fueling events and 96,000 miles (estimated) using 1,800 GGE of HCNG blends

H2 Vehicles
- Ford F-150 16-valve
  3.4L V6, 100% hydrogen, 5-speed manual transmission, fuel injected, supercharged, & 4-speed option
- Onboard hydrogen storage (3 Dynetek tanks, aluminum inner vessel-thermoplastics wrap, 3,200 psi, 135 Btu/hour)
- Fuel testing: 3,500 miles / 17.0 Miles/GGE
- Ford F-150 32-valve
  5.4L V8, 100% hydrogen, supercharged, fuel injected & supercharged
- Onboard hydrogen storage (3 Dynetek tanks, aluminum inner vessel-thermoplastics wrap)
- Fuel testing: 7,500 miles / 16.3 miles/GGE
- Chevrolet Silverado 1500 HD Crew Cab Z25 LD
  6.0L V8, 180 horsepower, 4-speed automatic, fuel injected, supercharged and intercooled
- Onboard hydrogen storage (3-55L, aluminum lined - carbon fiber reinforced tanks, 8,000 psig, 10.7 Btu/hour)
- Anticipated 15 miles/GGE
- 1998 Mercedes Sprinter Van
  100% hydrogen and fuel injected
- Onboard hydrogen storage (3 steel hydrogen tanks, 3,000 psi, 115 liters)
- Fuel testing: 7,400 miles / 15 miles/GGE
- Cummins Net Generator
  100% Hydrogen and 10 to 50% HCNG Blends
  450 kW natural gas genset
  Cummins 8.3L LE engine and 100kW generator
  50% EGR with two turbochargers