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Louisiana Energy Topic

Department of Natural Resources

Technology Assessment Division

A Supplement to LOUISIANA ENERGY FACTS on Subjects of Special Interest

Alternative Motor Vehicle Fuels in Louisiana

The three major driving forces behind the usage of alternative fuels for vehicles are:

- 1) There is a desire to reduce our reliance on foreign sources of oil: Of the 15.17 million barrels/day (MMB/D) of crude refined in the US during 2000, the US imported 2.41 MMB/D from Arab OPEC, 2.13 MMB/D from non-Arab OPEC, and 4.52 MMB/D from non-OPEC countries. The September 11, 2001, terrorist attack accentuated the vulnerability of our vital oil supplies.
- 2) It can be a means of reducing motor vehicle pollution problems: Gasoline is a very efficient and convenient way to store energy. One pound contains 19,000 BTU, and simply pours out of a nozzle as a liquid at normal temperatures and pressure. The problem is, when gasoline is combusted with air, it produces carbon dioxide and a myriad of pollutants, such as oxides of nitrogen and carbon monoxide. The oxides of nitrogen, when exposed to sunlight, produce smog, a major health hazard.
- 3) There is a limited supply of current fuel sources: Although we keep discovering new oil and gas fields, supplies will eventually run out. Time estimates vary greatly, but inevitably that day will come.

The two major stumbling blocks to conversion to alternative fuels are:

- 1) There is a lack of a marketing infrastructure and fueling convenience: No other fuel has the distribution network of gasoline. Electricity and natural gas are readily available, but battery technology limits the use of electricity, and natural gas must be compressed or liquefied to be useful in vehicles.
- 2) The economics for most new fuels is unattractive: Alternative fuels, and alternative fuel vehicles (AFVs), are not cost competitive with gasoline at the present time.

Alternative fuel and AFVs have the potential to become less expensive as technology matures. Gasoline will become more expensive as crude oil supplies dwindle. At some point, the price curves will meet and the economics of alternative fuels will be competitive. Until then, federal and state incentives are being used to help spur the development and distribution of alternative fuels.

Federal and state legislative deadlines mandating the increased use of alternative fuels have spurred some Louisiana vehicle fleet owners to begin converting a portion of their fleets. Most new conversions are to compressed natural gas (CNG), but the majority of AFVs now on the road are fueled by liquefied petroleum gas (LPG), commonly known as propane. However, Louisiana Department of Revenue and Taxation records show a steady decrease in the number of these vehicles over the past few years.

Ecogas of Louisiana began the conversion of a portion of the state government fleet to CNG in March 1994 in accordance with their contract with the state. The contract was terminated in December 1995 after 184 conversions had been completed due to high costs and insufficient refueling infrastructure. Some city and parish governmental entities have converted a few vehicles in their fleets. For example, the Baton Rouge Department of Public Works has 61 CNG vehicles operating, with plans for more in the future.

Currently, there are four unrestricted public access CNG refueling stations and a few others willing to provide limited access with prior coordination. Public demand for personal natural gas vehicles (NGVs) remains virtually nonexistent due to the high cost of conversion and the lack of adequate refueling infrastructure participation.

There are several federal programs designed to increase the use of alternative fuels. One such program is the Department of Energy's (DOE) Clean Cities Program. Stakeholders of the Clean City organizations are motivated by voluntary measures, not by government mandates. The stakeholders, whether fuel providers, vehicle manufacturers, fleet managers, or air quality representatives, work together as a coalition to further the development of the AFV market.

State government offers tax incentives to encourage increased use of AFVs. Act 1060 of 1991 provides for a 20% tax credit for AFV purchases, certain conversion costs, and fuel dispensing facilities. Natural gas and LPG fuels also enjoy a lower state and federal tax rate compared to gasoline.

Much progress has been achieved in hybrid electric vehicle (HEV) technology, and the number of HEVs is beginning to increase. As battery performance and mechanical drive components continue to improve, and costs are reduced, we can expect to see more of these vehicles in use in Louisiana. Currently, only Honda and Toyota have hybrid cars that can be purchased, but models from several other manufacturers are in the works for 2004 and beyond.

The 2003 *Alternative Motor Vehicle Fuels in Louisiana* report is now available. If you are not currently on the mailing list to receive a copy, you can request one by emailing techasmt@dnr.state.la.us, or by calling Jan Janney at 225-342-1270. An electronic version is available on our website at <http://www/sec/execdiv/techasmt/data/index>.