



Technologies for producing alternative transportation fuels

C Leon*

Department of Environmental Sciences, Hokkaido University, Sapporo, Japan

*Corresponding author. E-mail: leon.cheing90k@uoki.edu.jp

Received: 21-Nov-2022, Manuscript No: GJPRAF-22-84238; **Editorial assigned:** 23-Nov-2022, Pre QC No: GJPRAF-22-84238 (PQ); **Reviewed:** 07-Dec-2022, QC No: GJPRAF-22-84238; **Revised:** 16-Dec-2022, Manuscript No: GJPRAF-22-84238 (R); **Published:** 26-Dec-2022, DOI:10.15651/GJPRAF.22.1.012

DESCRIPTION

The sharp increase in petroleum prices that began in mid-1999, as well as experiences with tighter supply and international instability, have renewed concerns about our reliance on petroleum imports. One strategy for reducing this reliance is to manufacture vehicles that run on fuels other than gasoline and diesel. Alcohol, gaseous fuels, renewable fuels, electricity, and coal-derived fuels are among the alternatives. Environmental considerations have aided the development of alternative fuels, which in many cases reduce emissions of harmful chemicals and ozone-forming substances and green house gases. Each fuel has different advantages and disadvantages. The main disadvantage of all alternative fuels is that Alternative Fuel Vehicles (AFVs) are generally more expensive to own than conventional vehicles due to higher fuel and/or vehicle prices. While many AFVs outperform conventional vehicles in terms of environmental performance, their performance in terms of range, cargo capacity, and ease of fueling may not be comparable. Furthermore, because there is little infrastructure for AFV fueling (compared to gasoline and diesel fuel), it can be inconvenient. Any policy that supports AFVs must address concerns about performance and cost, as well as the issue of fueling infrastructure.

Hydrogen Fuel Cell

Because of its ability to consume clean and affordable energy, hydrogen is one of the alternative fuels being used. By combining hydrogen and oxygen atoms, hydrogen fuel cells generate electricity. Hydrogen-powered vehicles run on the reaction of hydrogen stored in a high-pressure tank and oxygen absorbed from the outside air. This reaction produces energy, which powers the electric motor. A fuel cell is two- to three-times more efficient than a gasoline-powered internal combustion engine. The use

of hydrogen in automobiles is a major focus of fuel cell research and development. The majority of hydrogen-powered vehicles are automobiles and public transportation buses with an electric motor powered by a hydrogen fuel cell. Some of these vehicles directly burn hydrogen. The high cost of fuel cells, combined with the scarcity of hydrogen fueling stations, has limited the number of hydrogen-powered vehicles on the road.

Biofuel

Ethanol and biodiesel are biomass-based transportation fuels. Although these fuels are typically blended with petroleum fuels (gasoline and diesel), they burn cleaner.

Ethanol is a type of alcohol fuel derived from the sugars found in grains like corn, sorghum, and barley. Scientists are developing methods for producing ethanol from all parts of plants and trees rather than just grain. Farmers are testing fast-growing woody crops like small poplar and willow trees, as well as switch grass, to see if they can be used to make ethanol.

Biodiesel is a type of fuel made from vegetable oils, fats, or greases, such as used restaurant grease. Biodiesel fuel can be used in diesel engines without requiring engine modifications. Biodiesel is both non-toxic and biodegradable. Most air pollutants are reduced when biodiesel is burned instead of petroleum-based diesel fuel. Typically, biodiesel is sold as a blend of biodiesel and petroleum-based diesel fuel. The global energy system is undergoing transformation. New demand centers are emerging, and expanding transportation fuel infrastructure faces numerous challenges. It has become clear that unless significant policy changes or new technologies are implemented, the world will continue on an unsustainable path in terms of how it produces, delivers, and uses its energy resources.