

Study on Usage of Biodiesel as an Alternative Fuel in India

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The need for energy around the world continues to rise. A variety of factors determines the energy requirements of any country. Traditionally available sources of energy such as coal, petroleum, and natural gas meet the vast majority of the world's energy requirements. These resources are on the cusp of achieving their maximum production capacity. As a result, there is an increase in the need for renewable energy sources. Of the different types of energy available, biodiesel is the only one that can meet the world's energy needs while also alleviating the adverse effects of utilising conventional sources of energy. Because of the shortage of traditional fossil fuels, the increasing emissions of pollutants, and the increasing expense of conventional fossil fuels, biomass will become increasingly attractive. Biodiesel is a sustainable, biodegradable fuel produced in the United States from vegetable oils, animal fats, and restaurant grease that has been recycled. A methyl, ethyl, or propyl ester is produced by chemically reacting animal fats, soybean oil, or other vegetable oil with alcohol, yielding a methyl, ethyl, or propyl ester as a by-product. Biodiesel is the most promising contender for use as a substitute for diesel fuel in diesel engines. Biodiesel, on the other hand, has a higher efficiency than gasoline, according to some estimates. Biodiesel, which is derived from vegetable oils, can also be used to substitute diesel fuel. The following three objectives are the focus of this research: 1. Relevance of biodiesel as an alternative fuel. 2. Constraints of using biodiesel as only reliable fuel. 3. Prospects of biodiesel in India. An alternative fuel to Petro diesel must be technically possible and economically competitive, environmentally friendly, and easily accessible. The use of biodiesel may help to reduce emissions of some pollutants while increasing emissions of others. It will be possible to balance agricultural, economic development, and the environment through the use of biodiesel. Speaking of India, according to the BP Statistical Review of 2019, the country was the world's third-largest energy consumer in 2018, trailing only China and the United States. As a result, the gap between India's oil demand and supply continues to grow wider. The rising cost of petroleum imports has compelled the government of India to explore domestic fuel alternatives, such as biodiesel, which is proving to be a game-changer in the country. The government of India's commitment to promoting cleaner fuels is poised to increase the country's overall demand for biodiesel. Since India's primary energy demand is expected to expand within the next 20 years, cleaner fuel alternatives will continue to drive biodiesel sales as an alternative fuel. The transportation industry, railways, and industries are the primary end-users of biodiesel in India, and they represent a significant portion of the country's biofuel market. The demand for biofuels is migrating away from developed economies and towards emerging markets, attempting to frame policies that favour the domestic biofuels industry.

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