Popular Article

PRESENT SCENARIO OF INDIA BIOETHANOL PRODUCTION

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ABSTRACT

2G biofuels, also known as bioethanol, are produced by utilizing agro-industrial waste in biological processes. These biofuels are recognized for their sustainability, safety, and environmental friendliness. Currently, ethanol is being blended with petrol at a maximum concentration of 10% nationwide, with the eventual objective of fully substituting petrol with ethanol. This study examines India's ethanol blending program, assessing the policy's effects on ethanol distribution and production.

Keywords: Bioethanol, ethanol blended petrol, fuel, renewable, 2G biofuels

I. INTRODUCTION

India launched the Ethanol Blended Petrol (EBP) program to encourage the use of bioethanol as fuel. The EBP mandates the acquisition of ethanol from sugarcane juice, B and C-heavy molasses, and damaged food grains such as broken rice and wheat. The National Biofuel Policy of 2018 sets a goal of 20% ethanol blendage in gasoline by 2030. India approved the use of leftover rice in 2019 to produce fuel ethanol. The Indian government has been actively encouraging bioethanol production and usage as part of its ethanol blending program. This program mixes different amounts of ethanol with gasoline. At first, a 5% ethanol blend was required; over time, this amount has been raised gradually. The percentage of ethanol blended in 2020 was 5.2%, greater than the percentage in 2019 (4.5%). In India, the production of bioethanol is significantly influenced by the sugar sector. A by-product of sugar production called molasses is utilized as feedstock to produce ethanol. Several sugar mills have installed distilleries to turn molasses into ethanol. In addition to molasses, research is being done on non-sugar feedstocks for ethanol synthesis, like corn, biomass, and agricultural wastes. This rise is partly attributable to lower gasoline usage (Approximately 12% lower) during the countrywide COVID-19 shutdown, rather than an increase in the supply of ethanol.

With 330 distilleries, India can produce more than 6 billion liters of rectified spirit a year. Of which, 200 distilleries can provide around 3.5 billion liters of ethanol per year, which is suitable for use in fuel, industrial, medicinal, and potable liquor purposes. The Indian Mills Association reported that 1.7 billion liters of contracted supplies of ethanol were used in 2020. Of these, 781 million, 685 million, 111 million, and 125 million liters were made from heavy molasses, B-heavy molasses, damaged food grains, and sugarcane juice, respectively. To achieve a 4.5% blending rate in 2019, 1.9 billion liters of ethanol were combined with petroleum, and 2.5 billion liters of ethanol were produced from molasses.

Numerous sugar mills are increasing their capacity to produce ethanol. New ethanol factories are also being established. To increase productivity and efficiency in the manufacture of ethanol, Indian businesses are implementing cutting-edge technologies. Notwithstanding the increase in bioethanol production, there are still obstacles to overcome, including feedstock availability, competition from food production, and

infrastructure limitations. Institutions and research organizations are working to develop bioethanol production methods and investigate substitute feedstocks.

II. INDIAN ETHANOL INDUSTRIES

BALARAMPUR CHINNI MILLS LTD

It was started in 1975. The company is one of the largest manufacturers of sugar and ethanol, and it is headquartered in Kolkata. The enterprise can distil ethanol at a rate of 520 KLPD (kiloliters per day) and crush cane at a rate of 76500 TCD (tonnes of cane per day). The distilleries are located in Uttar Pradesh at Gularia, Balarampur, and Manakapur. A new distillery with an installed capacity of 320 KLPD is being built in Maizapur. The company's revenue for FY 21 was Rs. 4812 crores. The company plans to produce more ethanol from sugar-free molasses and sugar cane syrup in order to increase the amount of ethanol that is blended with gasoline.

DALMIA BHARAT SUGAR AND INDUSTRIES LTD

The company entered the sugar and ethanol industries in 1994, when it opened its first location in Ramgarh, Uttar Pradesh. Later, the company built greenfield plants in Jawaharpur, Uttar Pradesh, and Kolhapur, Maharashtra, to boost its capacity to generate ethanol. 305 KLPD (kiloliters per day) is the company's overall ethanol distillation capacity as a result. Dalmia Bharat Sugar produces a variety of products based on ethanol by distilling molasses. Products include palatable triple-distilled alcohol, extra-neutral alcohol (ENA), and rectified spirit (RS). They work in perfumeries and cosmetics, as well as the liquor industry. Denatured spirit, a solvent used in the chemical sector, and fuel-grade anhydrous ethanol for gasoline blending are also available.

BAJAJ HINDUSTHAN LIMITED

Based in Bombay, the Bajaj Hindustan Sugar Company is the biggest producer of both sugar and ethanol in India. The company was created in 1931 and became well-known for being a pioneer in the Indian sugar industry very soon after. The first factory was located in the Lakhimpur district of Gola Gokarannath, Uttar Pradesh, and could crush up to 400 tons of cane per day. It is now possible for the same plant to crush 13,000 metric tons of sugar cane every day. The firm began producing ethanol in India in 1944. BHSL can now produce 800,000 liters of ethanol per day and up to 136,000 TCD of crushing. BHSL produces ethanol in fourteen of its integrated sugar processing units located in Uttar Pradesh. In FY21, the company increased its ethanol production by 50% to 90900 KL.

HPCL BIOFUELS LIMITED

HPCL Biofuels Ltd. is a worldwide chemical manufacture company that was started in 2009 and has activities in India. The owner of the company is HPCL, or Hindustan Petroleum Corporation Limited. The government of Bihar welcomed the sugar mills owned by Bihar State Sugarcane Corporation Limited in 2007, and HPCL Biofuels Limited has been a part of India's Ministry of Petroleum and Natural Gas ever since. Fuel ethanol chemicals, which may be mixed with gasoline, are the company's main product. Additionally, HPCL Biofuels Limited's sibling companies, BPCL, IOCL, and HPCL, sell ethanol.

III. CONCLUSION

Energy is essential to India's economic development as a developing country. The initiative to combine ethanol has the potential to help India's economy grow to be worth trillions of dollars. In addition, more research on lignocellulosic feedstocks is required for their potential use in India. To help decision-makers make well-informed choices, a techno-economic study on the use of flex engines in the Indian transportation sector is also advised.

IV. REFERENCES

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