



A Monthly e Magazine
ISSN:2583-2212
Nov, 2023 3(11), 2967-2969

Popular Article

Ethanol Production plant in India

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<https://doi.org/10.5281/zenodo.10210780>

“Biofuels are the future of energy in this nation and around the world”

-Rod Blagojevich

Introduction

As we all know that India's pollution level is spiraling on a daily basis. Energy demand in India is growing due to the expanding economy, increasing population and urbanization. About 98% of the fuel requirement in the road transport sector is currently met by fossil fuel and remaining 2% by biofuel. Apart from the alternative fuel source, ethanol is one of the principles biofuels.

India is facing a lot of issues regarding ethanol industry. The main objective of this production plant is to blend it with petrol, currently 10% of ethanol is blended in petrol and government of India has set a target of 20% ethanol blended by 2025.

Why in headlines?

On **World Biofuel Day 2022**, the government of India announced a 2nd generation (2G) ethanol plant to be set up at the Indian Oil Corporation's refinery in Haryana. This ethanol plant will help reduce air pollution from the Delhi and the NCR region along with generating additional income and green fuel.

What is World Biofuel Day?

About:

- ✧ It is celebrated every year on 10th of August.
- ✧ It is observed to raise awareness of the importance of **non-fossil fuels** as a substitute for conventional fossil fuels.

History:

- ✧ This day is observed in honour of Sir Rudolf Diesel.
- ✧ He was the inventor of the diesel engine and was the first to predict the possibility of **vegetable oil** replacing fossil fuels.



What Is Ethanol?

It is one of the principal biofuels, which is naturally produced by the fermentation of sugars by yeasts or via petrochemical processes such as ethylene hydration. It is a domestically produced alternative fuel most commonly made from corn. It is also made from cellulosic feedstocks, such as crop residues and wood.

Ethanol as Fuel

The use of ethanol as a fuel for internal combustion engines, either alone or in combination with other fuels, has been given much attention mostly because of its possible environmental and long-term economic advantages over fossil fuel. Ethanol can be combined with petrol in any concentration up to pure ethanol (E100). Anhydrous ethanol (ethanol without water) can be blended with petrol in varying quantities to reduce the consumption of petroleum fuels, as well as to reduce air pollution.

About the Ethanol Plant

It will boost India's endeavors by utilizing about **2 lakh tons** of rice straw (parali) annually to generate around **3 crore litres** of ethanol annually. This plant will also utilize **maize** and **sugarcane** waste besides paddy straw to produce ethanol.

The project will provide direct employment to people involved in the plant operation and indirect employment will be generated in the supply chain for rice straw cutting, handling, storage, etc. The project will have zero liquid discharge. Through reduction in burning of rice straw, the project will contribute to a reduction of greenhouse gases equivalent to about 3 lakh tonnes of carbon dioxide equivalent emissions per annum, which can be understood as equivalent to replacing nearly 63,000 cars annually on the country's roads.

India's Other Initiatives regarding Biofuels

Ethanol Blending Programme

It is aimed at reducing the country's dependence on crude oil imports, cutting carbon emissions and boosting farmers' incomes. The Government of India has advanced the target for 20% ethanol blending in petrol (also called E20) to 2025 from 2030. India has already achieved the target of 10% ethanol blending in petrol with the country's ethanol production increasing to 400 crore litres.

The National Policy on Biofuels–2018

It provides an indicative target of 20% ethanol blending under the Ethanol Blended Petrol (EBP) Programme by 2030.

E-100 Pilot Project

TVS Apache two-wheelers are designed to run on E80 or pure ethanol (E100).



Pradhan Mantri JI-VAN Yojana, 2019

The scheme aims to create an ecosystem for setting up commercial projects and boost Research and Development in the 2G Ethanol sector.

Repurpose Used Cooking Oil (RUCO)

The Food Safety and Standards Authority of India (FSSAI) has launched this initiative that will enable collection and conversion of used cooking oil to biodiesel.

Going forward

Ethanol From Wastes

India has a real opportunity here to become a global leader in sustainable biofuels policy if it chooses to refocus on ethanol made from wastes.

This would bring both strong climate and air quality benefits, since these wastes are currently often burned, contributing to smog.

Prioritize Crop Production

With our depleting groundwater resources, arable land constraints, erratic monsoons, and dropping crop yields due to climate change, food production must be prioritized over crops for fuel.

Alternative Mechanism

To achieve the key goal, that is emissions reduction, alternative mechanisms-enhanced Electric Vehicles uptake, installation of additional renewable generation capacity to allow zero-emissions recharging, etc. need to be evaluated.

