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Biofuels

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Why is in news? India will soon launch E-20 fuel with 20% blending of ethanol, says Petroleum Minister Hardeep Singh Puri

Union Petroleum and Natural Gas Minister has said that India is confident of forming a bio-fuel alliance with other countries.

Addressing a curtain raiser press conference on India's **flagship Energy Event, India Energy Week 2023** in Bengaluru, the minister announced that **India will soon launch E-20 fuel with 20 percent blending of ethanol as by 2025** the ethanol production in the country would reach 1000 crore litres.

The minister said that India is looking forward to setting up an international biofuel alliance under India's G20 presidency.

Speaking about the phenomenal growth in the production of biofuel in the country, the minister said that **India has achieved the target of 10 percent blending of ethanol** and produced 455 crore litres of ethanol last year, saving around 40,000 crore rupees on import of crude oil, helping the farmers and conserving the environment

Speaking about encouraging the production of **green hydrogen**, the minister said that there are 43 plants that produce green ammonia and the target is to increase such plants to 5000 in number.

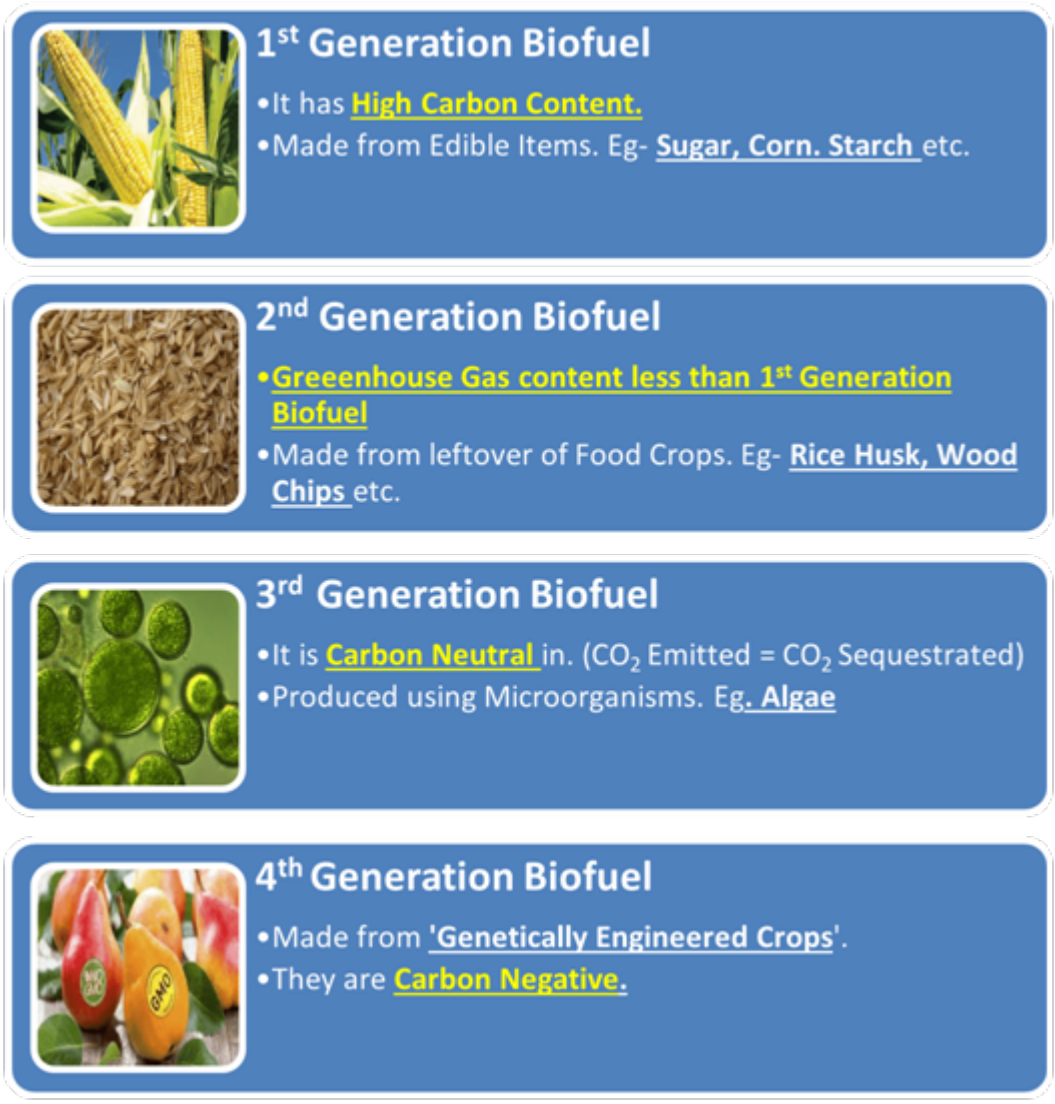
In the coming days **CNG,CBG and Electric Vehicles** will be promoted across the country to reduce dependency on crude oil imports.

Biofuels:

Biofuel is a fuel that is produced over a short time span from biomass, rather than by the very slow natural processes involved in the formation of fossil fuels, such as oil.

Biofuel can be produced from plants or from agricultural, domestic or industrial biowaste.

Biofuels may be **solid, liquid or gaseous** in nature. Solid: Wood, dried plant material, and manure, Liquid: Bioethanol and Biodiesel and Gaseous: Biogas.



August 10 – World Biofuels Day

The two most common types of biofuel are **bioethanol and biodiesel**. The U.S. is the largest producer of bioethanol, while the EU is the largest producer of biodiesel.

Bioethanol is an alcohol made by **fermentation**, mostly from carbohydrates produced in sugar or starch crops such as maize, sugarcane, or sweet sorghum. Cellulosic biomass, derived from non-food sources, such as trees and grasses, is also being developed as a feedstock for ethanol production. Ethanol can be **used as a fuel for vehicles in its pure form (E100), but it is usually used as a gasoline additive** to increase octane ratings and improve vehicle emissions.

Biodiesel is produced from oils or fats using **trans-esterification**. It can be used as a **fuel for vehicles in its pure form** (B100), but it is usually **used as a diesel additive** to reduce levels of particulates, carbon monoxide, and hydrocarbons from diesel-powered vehicles.

Recent Initiatives Regarding Biofuels:

Initiatives by Department of Biotechnology, Ministry of Science and Technology:

The department successfully developed **2G Ethanol** and transferred the technology to Oil Marketing Companies (OMCs).

Developed **Indigenous Cellulolytic Enzyme** for the production of biofuels.

Demonstrated **micro algae based sewage treatment** technology.

It has strengthened the international collaboration to accelerate innovation in **Sustainable Biofuel** through multilateral programs like Mission Innovation and Biofuture Platform.

It is training & encouraging young researchers in the field of Bioenergy through Fellowships/Awards.

Pradhan Mantri JI-VAN Yojana, 2019: The objective of the scheme is to create an ecosystem for setting up commercial projects and to boost Research and Development in 2G Ethanol sector.

Ethanol blending:The 2018 Biofuel Policy has the objective of reaching 20% ethanol-blending and 5% biodiesel-blending by the year 2030.

Recently, instead of 2030, the Centre plans to move ahead with its ethanol blending target of 20% of petrol containing ethanol by 2025-26.

It will promote the production of biofuels in the country, under the Make in India program, by units located in Special Economic Zones (SEZ)/ Export Oriented Units (EoUs).

GOBAR (Galvanizing Organic Bio-Agro Resources) DHAN scheme, 2018: It focuses on managing and converting cattle dung and solid waste in farms to useful compost, biogas and bio-CNG, thus keeping villages clean and increasing the income of rural households. It was launched under Swachh Bharat Mission (Gramin).

Repurpose Used Cooking Oil (RUCO): It was launched by Food Safety and Standards Authority of India (FSSAI) and aims for an ecosystem that will enable the collection and conversion of used cooking oil to biodiesel.

National Policy on Biofuels, **2018**: The Policy categorises biofuels as "Basic Biofuels" viz. First Generation (1G) bioethanol & biodiesel and "Advanced Biofuels", Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.

Expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.

Allows use of surplus food grains for production of ethanol for blending with petrol to ensure appropriate price to farmers during surplus. However, it needs the approval of the National Biofuel Coordination Committee.