



## World Biofuel Day

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The **World Biofuel Day** is observed every year on **August 10** to create awareness about the importance of **non-fossil fuels** as an alternative to **conventional fossil fuels**.

- The World Biofuel Day is being observed by the **Ministry of Petroleum & Natural Gas** for the last three years.
- Persons from diverse fields like Members of Parliament, Students, farmers, entrepreneurs, Ambassadors, Government officers will participate in the event.
- Separate interactive sessions on **ethanol, bio-diesel, bio-CNG** and **2nd Generation biofuels** are also scheduled after the inaugural session.

### NOTE:

#### Ethanol

- **Ethanol** is a renewable fuel made from various plant materials collectively known as "**biomass**".
- Ethanol is also available as **E85 (or flex fuel)**, which can be used in flexible fuel vehicles, designed to operate on any blend of gasoline and ethanol up to 83%.
- Another blend, **E15**, is approved for use in model year 2001 and newer vehicles.

#### Bio-Diesel

- **Bio-diesel** is an **alternative fuel** similar to conventional or 'fossil' diesel.
- Bio-diesel can be produced from straight **vegetable oil, animal oil/fats, tallow and waste cooking oil**.
- The process used to convert these oils to Bio-diesel is called **transesterification**.
- The main benefit of bio-diesel is that it can be described as '**carbon neutral**'. This means that the fuel produces no net output of carbon in the form of **carbon dioxide (CO<sub>2</sub>)**.

#### Bio-CNG

- **Bio-CNG** is the purified form of Biogas where all the unwanted gases are removed to produce **pure methane gas**.
- **Bio-CNG** is exactly similar to the commercially available natural gas in its composition and energy potential. As it is generated from biomass, it is considered a renewable source of energy and thus, attracts all the commercial benefits applicable to other renewable sources of energy.

## Ethanol Blending Programme (EBP)

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- It aims at **blending ethanol with petrol**, thereby bringing it under the category of biofuels and saving millions of dollars by cutting fuel imports.
- Under EBP program, availability of ethanol will increase due to the higher price for **C heavy molasses** based ethanol and enabling procurement of ethanol from **B heavy molasses** and sugarcane juice for the first time.
- The Government has also reduced GST on ethanol for blending in fuel from 18% to 5%.

### NOTE:

- Sugarcane molasses is a viscous, dark and sugar-rich by-product of sugar extraction from the sugarcane.
- B molasses (second molasses) has approximately the same DM content as A molasses but contains less sugar and does not spontaneously crystallize.
- C molasses (final molasses, blackstrap molasses, treacle) is the end by-product of the processing in the sugar factory. It still contains considerable amounts of **sucrose** (approximately 32 to 42%). C molasses does not crystallize and can be found in liquid or dried form as a commercial feed ingredient.

## National Policy on Biofuels

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- The objective of the Biofuel policy is to achieve **20% ethanol-blending** and **5% biodiesel-blending** by the year 2030.
- The policy also expands the scope of feedstock for ethanol production and has provided for incentives for production of **advanced biofuels**.

### Difference between Basic and Advance Biofuels

- **Second-generation biofuels**, also known as **advanced biofuels**, are fuels that can be manufactured from various types of **non-food biomass**. Biomass in this context means plant materials and animal waste used especially as a source of fuel.
- **First-generation biofuels** are made from the sugars and vegetable oils found in food crops using standard processing technologies.

- Second-generation biofuels are made from different feedstocks and therefore may require different technology to extract useful energy from them.
- Second generation feedstocks include **lignocellulosic biomass or woody crops, agricultural residues or waste**, as well as dedicated non-food energy crops grown on marginal land unsuitable for crop production.

## Initiatives Taken by the Government of India on Biofuels

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- Simplifying the procurement procedures of **Oil Marketing Companies (OMCs)**.
- Amending the provisions of **Industries (Development & Regulation) Act, 1951**.
- Enabling **lignocellulosic route** for ethanol procurement.
- Administrative price mechanism for ethanol.

### NOTE:

- **Lignocellulosic biomass** refers to **plant biomass** that is composed of **cellulose, hemicellulose, and lignin**.
- **Biomass** is increasingly recognized as a valuable commodity, since it is an alternative to **petroleum** for the production of **biofuels and chemicals**.
- Even today, **cellulose consumption** is threefold higher than that of steel and is equal to that of cereals, but its current uses are mainly restricted to the **materials sector (wood-based and paper)**.
- From an energy point of view lignocellulosic biomass can replace **fossil fuels**.

## Other Facts

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- **India** is the third **largest consumer of energy** in the world after **China** and the **US**.
- Currently, the country is dependent on imports for about 82.1 per cent of its **crude oil** requirement and to the extent of about 44.4 per cent in case of **natural gas**.
- Oil PSUs are also planning to set up **12 second generation (2G) biorefineries** to augment ethanol supply and address environmental issues arising out of burning of **agricultural biomass**.
- The **biofuels programme** is also in sync with other Government of India initiatives like **Make in India and Swachh Bharat Mission**.