



Ethanol Blending

For Prelims: Ethanol Blending, Biofuels, Crude oil, 2018 National Policy on Biofuels

For Mains: Ethanol Blending and its significance

Why in News?

The level of ethanol blending in petrol in India has **reached 9.99%**.

What is Ethanol Blending?

- **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.
- **Ethanol Blending Programme (EBP):** It is aimed at **reducing the country's dependence on crude oil imports**, cutting **carbon emissions** and **boosting farmers' incomes**.
- **Blending Target:** The Government of India has **advanced the target for 20% ethanol blending in petrol** (also called E20) to 2025 from 2030.

What is the Significance of Ethanol Blending?

- **Reduce dependency on Petroleum:**
 - By blending ethanol into gasoline, it can reduce the amount of petrol required to run a car, thereby **reducing dependence on imported, expensive, and polluting petroleum**.
 - Today, **India imports 85%** of its oil requirements.
- **Save Money:**
 - India's net import of petroleum was **185 million tonnes in 2020-21** at a cost of USD551 billion.
 - Most of the petroleum products are **used in transportation and therefore, the E20 programme can save the country USD4 billion** annually.
- **Less Polluting:**
 - Ethanol is a **less polluting fuel and offers equivalent efficiency at a lower cost** than petrol.
 - Availability of large arable land, rising production of foodgrains and sugarcane leading to surpluses, availability of technology to produce ethanol from plant-based sources, and the feasibility of making vehicles compliant to ethanol blended petrol (EBP) are some of the supporting arguments used in the roadmap for E20, which refers to the target as "not only a national imperative, but also an important strategic requirement".

What are the Related Issues?

- **National Policy on Biofuel:**
 - The **new ethanol blending target primarily focuses** on food-based feedstocks, in light of grain surpluses and wide availability of technologies.

- The blueprint is a departure from the [2018 National Policy on Biofuels](#), which prioritized grasses and algae; cellulosic material such as bagasse, farm and forestry residue; and, items like straw from rice, wheat and corn.
- **Risk of Hunger:**
 - The food grains meant for the impoverished are being sold to distilleries at prices cheaper than what states pay for their public distribution networks.
 - Competition **between the distilleries and the [public distribution system](#)** for subsidized food grains could have adverse consequences for the rural poor and expose them to enhanced risk of hunger.
 - India ranked 101st of 116 countries on the [World Hunger Index 2021](#).
- **Cost:**
 - Production of biofuels requires land, this **impacts the cost of biofuels as well as that of food crops**.
- **Water use:**
 - **Massive quantities of water are required for proper irrigation** of biofuel crops as well as to manufacture the fuel, which could strain local and regional water resources.
- **Efficiency:**
 - **Fossil Fuels produce more energy** than some of the biofuels. E.g. 1 gallon of ethanol produces less energy as compared to 1 gallon of gasoline (a fossil fuel).

Way 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.
- **Water Crisis:**
 - The new ethanol policy should **ensure that it doesn't drive farmers toward water-intensive crops** and create a water crisis in a country where its shortage is already acute.
 - Rice and sugarcane, along with wheat, consume about 80% of India's irrigation water.
- **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.

UPSC Civil Services Examination, Previous Years Questions (PYQs)

Q. According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (2020)

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

Select the correct answer using the code given below:

- (a) 1, 2, 5 and 6 only
- (b) 1, 3, 4 and 6 only
- (c) 2, 3, 4 and 5 only
- (d) 1, 2, 3, 4, 5 and 6

Ans: (a)

- The National Policy on Biofuels, 2018, allows production of ethanol from damaged food grains like wheat, broken rice, etc., which are unfit for human consumption.
- The Policy also allows conversion of surplus quantities of food grains to ethanol, based on the approval of the National Biofuel Coordination Committee.
- The Policy 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. Hence, 1, 2, 5 and 6 are correct. Therefore, option (a) is the correct answer.

Source: IE

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