E20 PETROL – ENVIRONMENT

NEWS: India has achieved 20% ethanol blending in petrol (E20) by 2025, five years ahead of the original 2030 target, prompting discussions on moving towards E27 and E85 grades and corresponding policy and automotive adaptations.

WHAT'S IN THE NEWS?

Concept and Purpose of Ethanol Blending

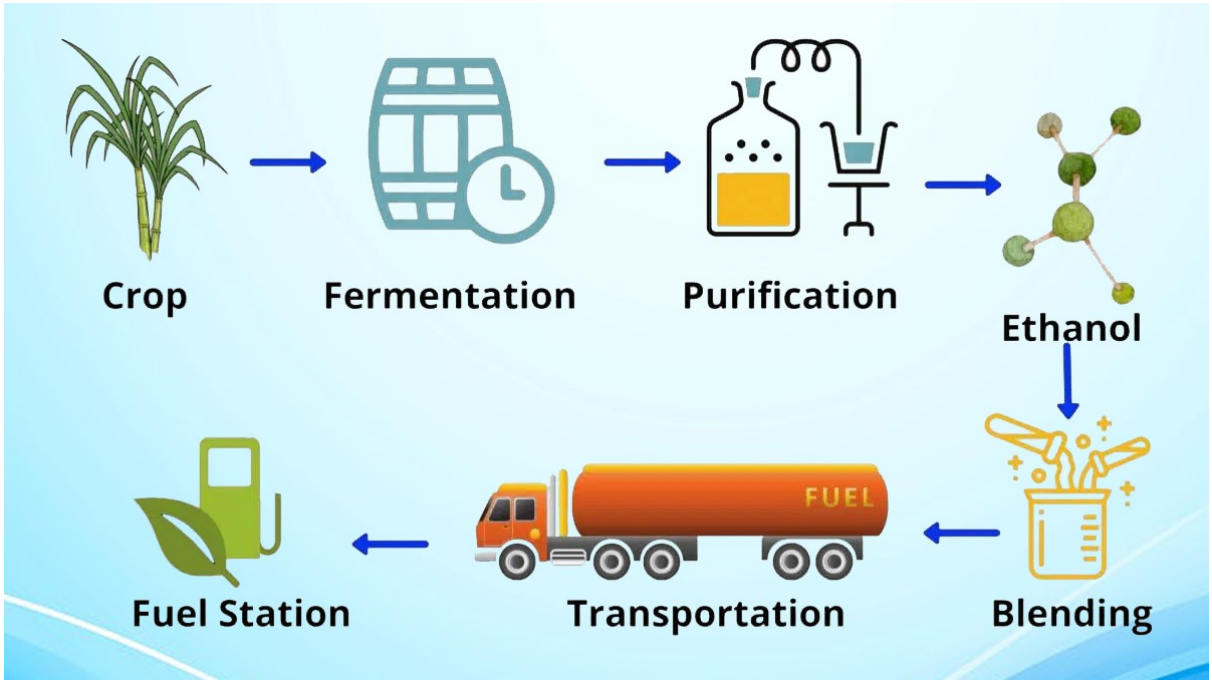
- Ethanol blending refers to the process of mixing ethanol, an alcohol-based renewable biofuel, with petrol to reduce dependence on fossil fuels.
- In India, ethanol is primarily produced from sugarcane, molasses, damaged food grains, and increasingly from lignocellulosic biomass.
- The blending helps in lowering greenhouse gas emissions, reducing crude oil imports, and promoting energy self-reliance under the broader aim of "Aatmanirbhar Bharat."

Targets and Achievements

- The **National Policy on Biofuels (2018)** originally aimed to achieve **20% ethanol blending in petrol by 2030**.
- India has **preponed this target to 2025** and has reportedly **achieved the E20 blending target across the country**, ahead of schedule.

Grades of Ethanol Blends

- **E20** (20% ethanol + 80% petrol) is now commercially available across most fuel stations in India.
- **E27** (27% ethanol blend) is proposed as the next phase, with implementation targeted around 2030.
- **E85** (85% ethanol + 15% petrol) is a high-blend ethanol fuel meant for **flex-fuel vehicles**; draft rules for its adoption have been notified by the government.



Automobile Compatibility and Industry Response

- Older or existing vehicles may not be fully compatible with E20 or higher ethanol blends, which may cause issues such as corrosion or reduced engine life.
- The **Society of Indian Automobile Manufacturers (SIAM)** has indicated that Indian manufacturers are ready with **engine modifications** to support ethanol blends.
- Several companies, including **Maruti Suzuki, Hyundai, Tata Motors, and Mahindra**, have unveiled or are developing **flex-fuel vehicles** capable of running on higher ethanol blends.

Economic and Environmental Impact

- According to the **Ministry of Petroleum and Natural Gas (MoPNG)**, from 2014 to July 2021, ethanol blending helped save approximately **₹26,000 crore** in **foreign exchange** by reducing oil imports.
- Ethanol blending also contributed to an estimated **reduction of 19.2 million tonnes** in **greenhouse gas emissions**, improving India's environmental performance.
- However, large-scale ethanol production from sugarcane has raised **concerns about intensive water use and land degradation**, especially in water-scarce regions.
- Environmental experts advocate shifting to **second-generation ethanol**, produced from non-food biomass sources like **agricultural residue, wood chips, and organic waste**, to balance environmental trade-offs.

Challenges and Limitations

- Ethanol has a **lower energy density** compared to petrol, which may result in **reduced mileage** for consumers.
- Despite savings on oil imports, **fuel prices for consumers have not reduced proportionately**, raising questions on **economic benefits for end users**.
- There are concerns over **engine wear and maintenance costs**, especially in older vehicles not designed for ethanol-rich fuels.
- Ethanol production from food crops like sugarcane may lead to **competition between fuel and food**, potentially impacting **food security** and increasing **stress on water resources**.

Institutional and Policy Framework

- The **Ministry of Petroleum and Natural Gas (MoPNG)** is the **nodal agency** responsible for the implementation and scaling up of ethanol blending in India.
- **NITI Aayog**, the central policy think tank, has recommended a **balanced approach**, encouraging the adoption of **second-generation ethanol** and diversification of feedstock.
- The **Ministry of Road Transport and Highways (MoRTH)** has notified **draft amendments** to the **Central Motor Vehicle Rules (1989)** to facilitate production and use of **flex-fuel-compatible vehicles**.

Source: https://www.livemint.com/industry/manufacturing/ethanol-blended-petrol-e20-e27-e85-

e100-carbon-emissions-forex-savings-import-bill-flex-fuel-cars-mileage-biofuel-11753266871184.html