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Flex-Fuel Vehicles

Why in news?

The government has advised carmakers to start making Flex Fuel Strong Hybrid Electric Vehicles (FFSHEV).

What are flex fuel vehicles?

- Flex fuel vehicles (FFV) are capable of running on 100% petrol or 100% bio-ethanol or a combination of both.
- Flex Fuel Strong Hybrid Electric Vehicles (FFSHEV) essentially houses an electric motor which powers the vehicle alongside the traditional petrol engine.
- Such vehicles are yet to be made widely available in world markets.

How are they different from existing vehicles?

- Dual fuel vehicle means the engine uses two fuels (gas and diesel) at the same time
- Bi Fuel means the engine could run on either fuel separately.
- FFV is capable of running on either petrol or ethanol or a combination of both hence it is a synthesis of Dual fuel vehicle and Bi fuel vehicle.

What government standard prescribes for blending?

- Bio-ethanol contains less energy per litre than petrol
- However the calorific value will become on par with petrol with use of advanced technology.
- A litre of petrol sold in India has an average of 8% ethanol content even though oil marketing companies have clearance to do 10% (E10) blending.
- All vehicles manufactured in India are tuned for E10. They will not be able to run on higher ethanol content beyond 10%.

Why is government of India pushing for FFVs?

- In FY21 India's oil import bill stood at \$62.7 billion.
- To make matters worse, the rupee is at its weakest level in last three financial years.
- The government is desperate to bring down the oil import bill by creating fuel substitutes like ethanol, hydrogen and electricity.
- Even a push till the E20 level can result in savings of \$4 billion per annum.
- This is possible only if flex-fuel vehicles are made available in the market.
- Also, FFVs will also help the government meet its commitments when it comes to reducing emission.

To what extent will FFVs help in cutting emission?

- By hitting E20
 - Carbon monoxide emissions were 50% lower in two-wheelers and 30% lower in four-wheelers compared to petrol.
 - Hydrocarbons were lower by 20%.
- E20 blending will result in drop in fuel efficiency by nearly 6-7% in 4 wheelers designed for E0 and calibrated to E10.

How does auto industry view this policy?

- Auto parts that come in contact with higher ethanol content have to be replaced with a compatible product to avoid corrosion.
- So higher blending of ethanol increases manufacturing costs of vehicles.
- Automotive companies say that they are ready to move with E20 by 2025.

Reference

1. <https://www.thehindubusinessline.com/blexplainer/all-you-need-to-know-about-flex-fuel-vehicle/article38061000.ece>



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