World's first electrified flex fuel vehicle launched

ONE OF A KIND. This first-ever prototype developed by Toyota Kirloskar Motor adheres to stricter BS-6 Stage II emission standards of the country

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Road Transport and Highways Minister Nitin Gadkari on Tuesday launched the world's first prototype of the BS-6 Stage II electrified flex fuel vehicle, developed by Toyota Kirloskar Motor (TKM).

Also present on the occasion were Oil Minister HS Puri, Heavy Industries Minister Mahendra Nath Pandey, Toyota MD & CEO Masakazu Yoshimura, Kirloskar Systems MD & CEO Geetanjali Kirloskar as well as Ambassador and diplomats from Japan Embassy.

In his address, the Highways Minister said the prototype is based on Innova Hycross and is engineered to adhere to India's stricter emission standards, marking it as the first-ever BS 6 (Stage II) electrified flex fuel vehicle prototype globally.

The forthcoming stages for this prototype encompass meticulous refinement, homologation, and certification processes, he added.

ETHANOL BLENDING

Talking about India's work on bio-fuels, Oil Minister Puri pointed out that in 2014, India was blending ethanol only to the extent of 1.53 per cent. With huge efforts made by the government and industry, in a short span of 8 years, it has increased by over 8 times to reach the blending of around 11.5 per cent (March 2023).

This has helped us not only to make big savings in the import bills but also has contributed to lowering of carbon emissions. We have advanced the target for E20 blending to 2025 (5 years ahead of the earlier planned schedule), from the original plan of 2030, he added.

"E20 fuel is being dispensed at more than 3,300 fuel stations across the country and shall be available pan India by April 2025. With E20 implementation by April 2025, expected import bill savings may be around ₹35,000 crore annually, oil import displacement will be 63 million barrels of gasoline (in EY 2024-25)," Puri said. This will further contribute to reducing GHG Emission by 21 million tonnes and PM 2.5 emissions up to 14 per cent than gasoline. We are confident that by such time, we will not only have E20 but beyond, the Oil Minister added. Puri noted that India has huge ethanol potential and can utilise excess ethanol by promoting Flex Fuel vehicle and flex fuel strong hybrid electric vehicle/electrified flex fuel vehicle. On the rationale behind flex fuel vehicles, TKM said that due to large increase in mobility needs, the transport sector, which currently accounts for about 50 per cent of oil demand, will be the most significant contributor to this.

GRAND DEBUT. Minister for Road Transport and Highways Nitin Gadkari; Minister for Petroleum and Natural Gas Hardeep Singh; and Mahendra Nath Pandey, Minister for Heavy Industry, during the unveiling of the electrified flex fuel vehicle KAMAL NARANG

RATIONALE

"As per estimates, the transport sector energy consumption in India is expected to double to 200 million tonnes (million tonnes of oil equivalent) of energy in 2030. The higher fossil fuel consumption is also bound to result in larger carbon emissions. Therefore, it is imperative for us to rapidly shift away from fossil fuels with utmost urgency," it added.

TKM pointed out that the challenge with flex fuel vehicles is lower fuel efficiency of Ethanol due to its lower energy density. Globally to counter this challenge, electrified flex fuel vehicles are being introduced, as an advanced green technology that has both the flex fuel engine as well as an electric powertrain.

Therefore, as in the case of a strong hybrid electric vehicle, which can run 40 per cent of the distance and 60 per cent of the time in electric mode (under specific test conditions) with the petrol engine shut off, the use of the electric powertrain in combination with the flex fuel engine overcomes this challenge with enhanced fuel efficiency, it added.

As such, electrified flex fuel vehicles provides the twin benefit of higher fuel substitution (with ethanol) as well as good fuel efficiency, due to high ratio of electric mode driving. The electrified flex fuel vehicles uses minimal advanced chemistry batteries (~1.3-1.5 KWhr Vs 40-60 KWhr for BEV), thus guarding against negative impact of high imports of cells & cell raw material, considering possible geo-political supply risks.