

# INDIAN ETHANOL SECTOR

Presentation on 09/09/22 to  
**Tarun Kapoor, IAS**  
Advisor, PMO

Aditya Jhunjhunwala  
President,  
Indian Sugar Mills Association (ISMA)

# Demand and Supply of Ethanol



**20% blending** in the ESY 2025-26 = 1016 Cr Litres of Ethanol.(NITI Aayog)



- 2 ways : ~~expand existing capacity~~ (already done)  
& set up green field (only option)

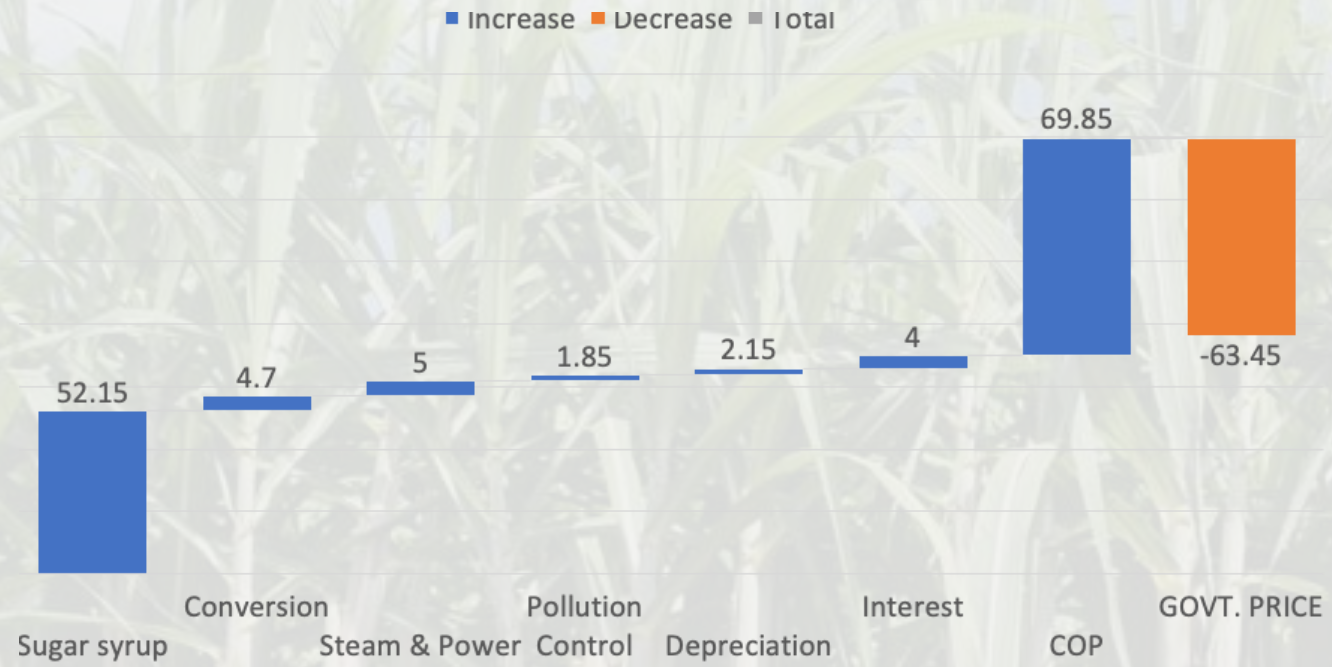


New projects - price of ethanol manufactured from sugarcane juice/ sugar syrup has to be based on **Return on Equity** with a payback period of 5 years.



**price** arrived at by ISMA based upon ROE works to **Rs 69.85 per litre ...**  
...to be further verified by an independent agency

# Cost of production of ethanol from Sugarcane Juice/ Sugar Syrup



# Current Price of Ethanol ESY 21-22

Sources	Price per litre
sugarcane juice, sugar / sugar syrup	Rs. 63.45
B heavy molasses	Rs. 59.08
C heavy molasses	Rs. 46.66
Damaged Food Grains	Rs. 52.92
Maize	Rs. 52.92
Surplus Rice	Rs. 56.87

## GOVT FIXED PRICES.....OMC FIXED PRICES







In order to **bring transparency** and provide better level playing field to all producers of ethanol as also the concerned farmers, the **price of ethanol manufactured from grain based feedstocks be fixed by the government.**

# Flex Fuel Vehicles (FFVs) in Brazil

- **Flex fuel engine** technology is a well accepted concept in Brazil.
- About **90% of the vehicles** on road are FFVs.
- FFVs in Brazil operate with E27 or E100 Hydrous ethanol or any blend in between.
- FFVs were introduced in 2003.
- Currently they are manufacturing **FFV- Hybrid, which gives a mileage of 22 km/ Ltrs.**
- **Vehicle technologies for ethanol** are already proven along with the compatible fuel systems, **globally and accepted by Niti Aayog also.**
- **The vehicular emission norms** in Brazil are prescribed at 80 mg/km (NMOG + NOx both combined) whereas, in India NMHC has been prescribed at 68 and NOx at 60. Thus making a total of 128 mg/km. This **will be required to be slightly modified.**
- A comparative table showing emission norms in Brazil and India is showing in the following slide.



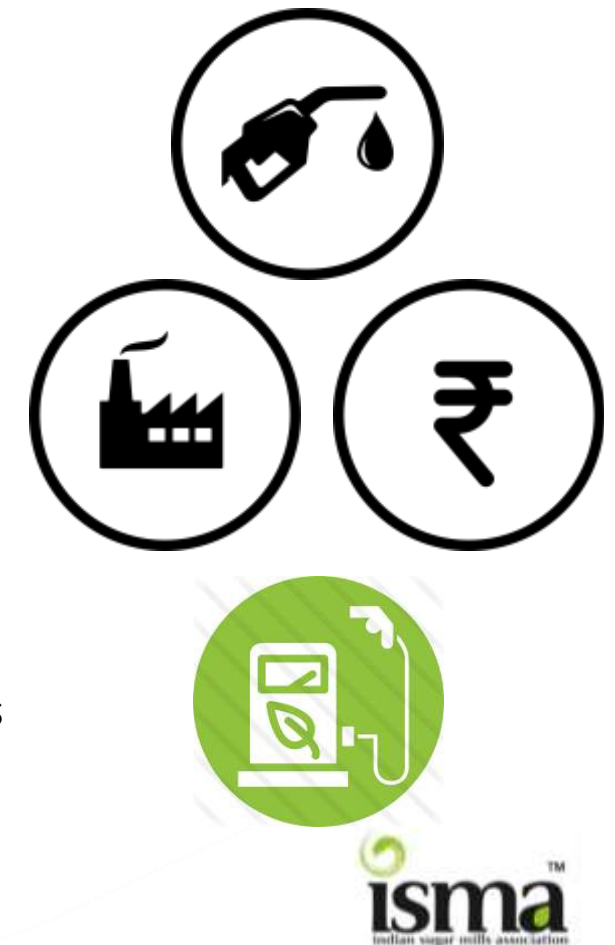
# Changes in Norms of Vehicular Emissions

Item	Comments	PL 7 (Brazil) 01/2022	BS VI-B (India) 04/2023
<b>Driving Cycle</b> 	The driving cycle influences the time required to heat-up catalyst and its average efficiency. IDC and WLTC are not known by Flex cars.	FTP75 (US cycle)	IDC Similar to European NEDC WLTC in 2025 (likely)
<b>NMOG and NOx Limits</b> 	PL7 considers NMOG + NOx limit, while BS considers it separated limits. Note: PL7 NMOG is calculated based on std reactivity factors (MIR)	NMOG + NOx limit 80mg/km	NMHC: 68 NOx: 60 Sum = 128 mg/km
<b>Particulate Limits</b> 	BS VI-B required particulate filter when driving with E20 (not developed for Flex). Ethanol presents much lower particulate # emission	6,0mg/km No limit for particle number	4,5 mg/km $6 \cdot 10^{11}$ #/km
<b>Evap Limit</b> 	Limit of evaporated fuel measured in a std. test. PL7 limit already lower and in 2025 ORVR system obligatory in Brazil	<0,5 g/test Hot Soak Loss Test – 1hr + Diurnal loss Test – 2 x 24 hr	<0,2 g/test Hot Soak Loss Test – 1 hr + Diurnal loss Test – 1 x 24 hr
<b>RDE</b> 	Emission in a real drive condition with specific driving boundary conditions (ex. Start temperature). BS VI-B limit unclear.	Monitoring (no limit)	Compliance (limits TBD)
<b>OBD</b> 	On Board Diagnosis rules: Flex requires special adaptations (ex. No diagnosis during furl learning)	OBD – BR3 Adapted for Flex Fuel requirements	OBD II (as EU6-2)

➤ Accept PL7 homologation for Flex Fuel vehicles (low environmental impact) until 4/27.

# Other Solutions to Augment Supplies

- **Ministry of Petroleum & Natural Gas (MOPNG)**, has prescribed the procedure for opening of retail sale of petrol.
- A licensee should have a minimum net worth of at least **Rs 250 Crores** at the time of making the application and needs to set up 100 retail outlets.
- In addition to conventional fuels, the **licensee can sale at least one biofuel along with the conventional fuel.**
- Therefore, the condition of minimum net worth may be withdrawn for a sugar mill, which is already existing and they may be allowed to sale ethanol by putting 5-6 outlets in their area.
- As per the CPCB guidelines, two technologies are approved, i.e., bio-composting after bio-methanation of spent wash and incineration of spent wash after its concentration.
- In case of conversion of sugarcane juice/ syrup into ethanol, **more than 90% of organic matter gets converted** and hence the effluent so generated does not have higher COD/BOD.
- In Brazil the distilleries spread all their spent wash in the fields as the spent wash is richer in nutrients.
- In India **permission for one time controlled land application of spent wash** generated during manufacturing of ethanol from sugarcane juice may be granted.



# Our Requests.....



**FFVs may be launched** immediately to achieve the blending targets.



To **attract green field projects** price of ethanol from sugarcane juice / sugar syrup should be **increased to Rs 69.85**



To **maintain transparency**, price of grain based ethanol should be **fixed by the Government**



Vehicular **emission norms may be modified slightly** to bring them at par with those prevalent in Brazil to **encourage the automobile manufacturers.**



Sugar mills may be **allowed to retail ethanol by putting up 5-6 outlets** in their area, without any condition of minimum net worth as these mills are already existing and doing their business.







THANKS