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The purpose of this product is to offer a brief & simplified rationale behind our investments in certain businesses/themes in our long only portfolios. This is not meant to be an elaborate research report or a recommendation. In this note we explain why we are positive on India's Bioeconomy theme.

Forging India's Bioeconomy

We see India paving its way as an "Ethanol Economy" owing to rising energy demand. Today, India imports 85% of its oil requirement at a net cost of US \$ 55 Bn (2020-21) majorly used in transportation, hence a successful Ethanol blending program (20%) can save the country US \$4 billion per annum.

All the interests are finally aligned:

Sugar is a sector of significant importance to the national economy. India has now become the world's largest sugar producer and this has resulted into surplus sugar inventories. However, the Indian sugar industry has witnessed some stabilisation in the last two years due to increased Government regulation and initiatives. There is now a common interest which lies between the government, the industry and the farmers in keeping adequate profitability so farmers can be paid on time and cane arrears do not mount.

Through successful ethanol blending program, Government can achieve/promote:

- ❖ Make in India
- ❖ Swachh Bharat
- ❖ Doubling of farmers income
- ❖ Promote waste to health generation
- ❖ FX Savings to the exchequer

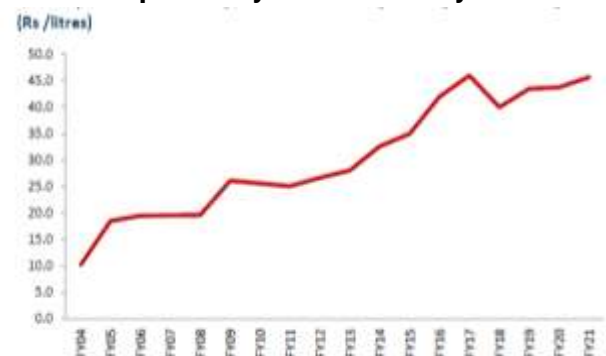
Biofuel policy – a game changer

Currently, petrol with 10% ethanol blend (E10) is being retailed by various Oil Marketing Companies in India. The current level of average ethanol blending in the country is 5% (Ethanol Supply Year 2019-20). The present Government seems to be very serious in achieving the Ethanol blending target of 20% and has preponed to achieve this by year 2025 from earlier 2030. The blending target is achievable in the new construct owing to changes in "National Bio-fuels Policy 2018" thereby including wider range of feedstock for ethanol production.

Commercial viability:

A series of measures have been taken to make ethanol production more remunerative. As a result, more than 500 million litres of distillery capacities have been set up. Furthermore, encouraging signs of additional capacities would be prevalent as we divert from B-Heavy molasses to Cane juice. The Indian government's commitment towards biofuels with a long-term direction is positive, as it will give confidence for capex in ethanol projects in the country benefitting Praj Industries (~60% market share).

Chart1: Ethanol price is attractive to producers and not impacted by crude volatility



Source: Phillip Capital India Research, Industry.

Table1: Ethanol capacity augmentation (20% blending by 2025-26)

Ethanol Supply Year	Projected Petrol Sale (MMT)	Projected Petrol Sale (Cr. litres)	Blending (in %)	Requirement of ethanol for blending in Petrol (Cr. litres)**
A	B	B1=B X 141.1	C	D=B1*C %
2019-20	24.1 (Actual)	3413 (Actual)	5	173
2020-21	27.7	3908	8.5	332
2021-22	31	4374	10	437
2022-23	32	4515	12	542
2023-24	33	4656	15	698
2024-25*	35	4939	20	988
2025-26*	36	5080	20	1016

Source: Phillip Capital India Research, Industry.

Table 2: Ethanol Required (20% blending by 2025-26)

Ethanol Supply			
Ethanol Supply (in Cr. L.)	Fuel ethanol	Other uses	Total
(A) From sugar sector	550	134	684
(B) From grains/ maize etc.	466	200	666
Total Supply	1016	334	1350
Capacity Augmentation			
Ethanol Capacity (in Cr. L.)	Molasses based	Grain based	Total
Existing ethanol/alcohol capacity	426 (231 distilleries)	258 (111 distilleries)	684
Capacity addition from sanctioned projects	93 (will be added by March, 2022)	0	93
New capacity to be added	241	482	723
Total Capacity required by Nov 2026 to reach 1350 Cr litres supply	760	740	1500

Source: Phillip Capital India Research, Industry.

Bio-mobility: On the way to USA, Brazil model

USA is the largest producer of ethanol followed by Brazil and both put together contributing 80% of global production. Brazil is the world's first "sustainable" biofuels economy and is a model for other countries. It produces ethanol from sugarcane, which is the most successful alternative fuel. It's cost of production is c.US\$ 0.5/litres, while in India it is c.US\$ 0.45/litres from B-heavy. India can replicate Brazil, as both have an agricultural base and are largest producers of

sugar cane. In terms of blending, both the countries have surpassed 25% where India can also look forward to.

Structural Story

With the current retail price of petrol being close to INR 100 per litre, the process of new flexi-vehicles will speed up, as ethanol is under GST (5% rate) and retail prices could be below INR 70 per litres. There are various ways to invest in this theme, but at present we are investing through Praj Industries and not sugar distillery companies as its marred by political interference and volatile financials. Over the last several years, Praj has developed sustainable de-carbonisation solutions with a unique position in ethanol technology.

Key Risks:

- ❖ Availability of sufficient feedstock on a sustainable basis
- ❖ Weather related issues
- ❖ Pricing of feedstock and ethanol
- ❖ Reversal in supportive Government policies

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