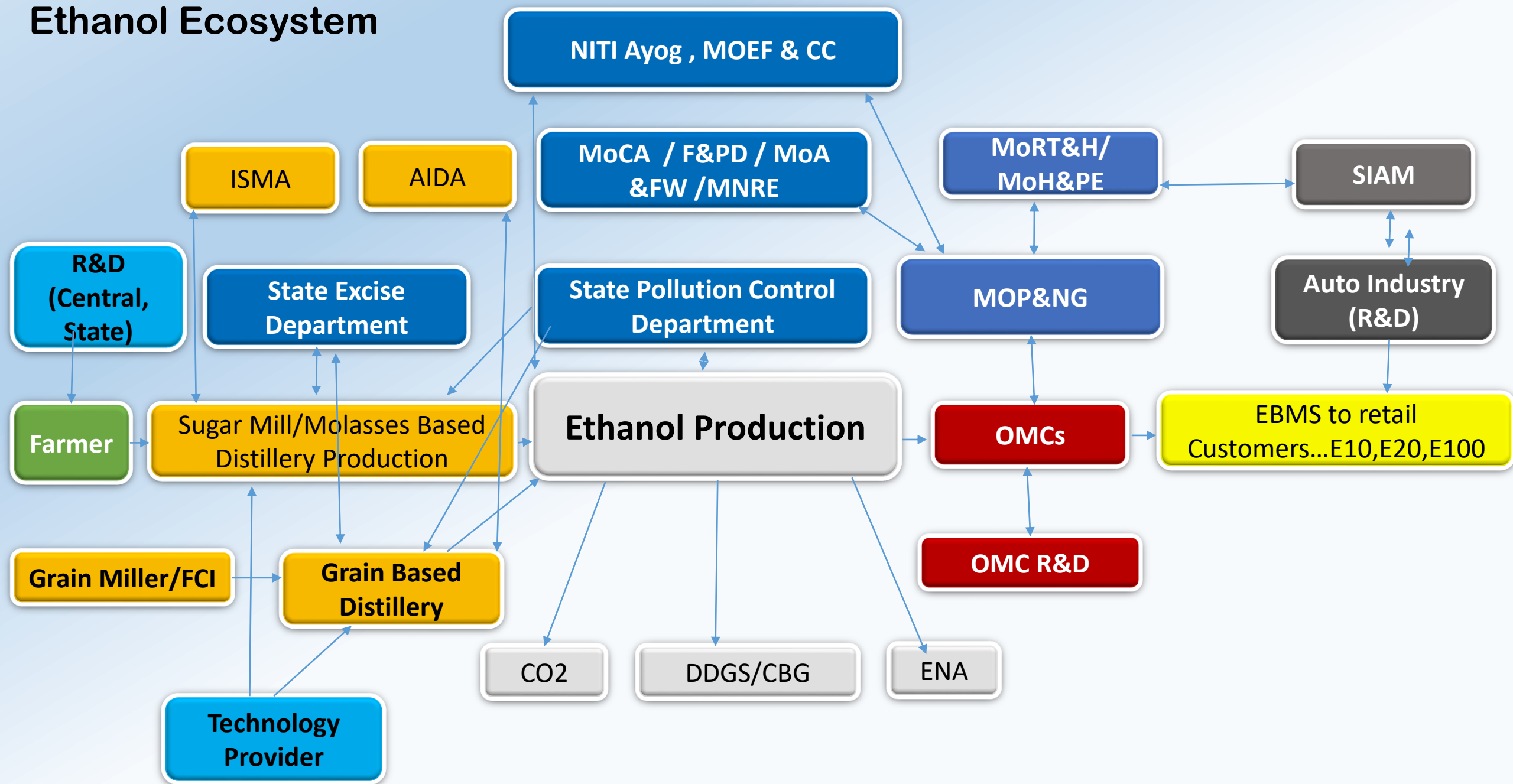


Ethanol Blending Programme in India

Challenges & Opportunities

Milind S Patke
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Ethanol Ecosystem



Central and State Governments/Departments

Challenges

- Pricing of Ethanol on the basis of feedstock.
- Ensure uniform blending % across the country
- Creation of additional distillation capacity.
- Speedy approvals by PCB
- Implementation of IDR act

Opportunities

- Surplus Sugar after export subsidy is withdrawn in Dec 23
- Surplus Rice can also be diverted
- Maize farming can be encouraged (Ind 2.6tn/H, USA 10.7 tn/H)
- More ethanol capacity enables Govt to advance E20 implementation
- Higher Blend % reduces foreign exchange

Oil Marketing Companies

Challenges

- Uniform distribution of EBMS across length and breadth of the country.
- Increased complexities in storage and handling of multiple variants
- Handling multiple variants of Gasoline at Ros
- Ethanol compatible dispensing units for higher blends/E100
- Optimum transportation cost
- Mismatch of Petrol seasonality and Ethanol seasonality leading to imbalance in demand/Supply.
- Hygroscopic nature of Ethanol.

Opportunities

- Reduction of carbon footprint
- Own plants for Ethanol Manufacturing improves reliability.
- Reduce dependence on imported crude.
- Use of ethanol as octane booster
- Use of ethanol for diesel blending?

Automakers

Challenges

- Decision on Engine upgradation
 - Timing
 - Strategy
 - E10 or E20 or both?
- Decision on flex fuel vehicles
- Decision on value proposition to customers?
- Development of “E100 two wheelers” lags ethanol availability.

Opportunities

- Launch new variants
- Launch flex fuel vehicles
- Adopt different value proposition
- Recalibrate their strategy vis a vis electric vehicles
- Expedite diesel trials.

Ethanol Producers - Existing

Challenges

- Choice of feedstock?
- Ethanol vs ENA?
- Choice of technology!
- Tie ups with OMCs
- Capacity addition in a surplus state?

Opportunities

- Finalize expansion plans
 - Single feed or dual feed?
 - Enhanced capacity!
- New capacity in deficit states with grain as feedstock
- Tripartite arrangement with OMCs/banks
- Interest subvention scheme
- Easing of EC Norms

Ethanol Producers - New

Challenges

- Right capacity?
- Choice of feedstock?
- Availability of land/water
- Which deficit state?
- SPA with OMC?

Opportunities

- Tripartite agreement with OMCs/Banks
- Interest subvention scheme
- Easing of EC Norms
- Deficit states - Grain based ethanol plants.

Technology Providers

Challenges

- Technology solutions with lower capex and opex!
- Optimize water consumption especially in 2G technology.
- Provide an integrated optimized solution for 2G and 1G....and even CBG
- Provide revenue streams of Bio-chemicals.- requires patents

Opportunities

- Platform for testing and optimizing technology on such a wide scale.
- Great opportunity for developing technology for bio-chemicals.
- Technology interventions to promote and optimize Maize based ethanol manufacturing.

Farmers

Challenges

- Surplus position in rice and sugar will compel farmer to look at his options.
- Ethanol production -1G and 2G require high make up water. This could come at the cost of water meant for irrigation.

Opportunities

- Maize farming is an option with Govt encouraging farmers to improve yield per hectare.
- Maize demands much less water.
- Higher ethanol demand will ensure better and faster remuneration for his produce

Retail Customers (Buying E10,E20,E100....)

Challenges

- Uniform availability of E10 or E20 or E100 across the country
- What is a better option? EV or E20 compliant vehicle?
- Higher maintenance due to E20?
- What will be the mileage?
- Will flex fuel vehicle be costlier?

Opportunities

- Lower carbon emissions
- Improved power with E20 compliant vehicles.



Thank You

For your patient listening

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