



# **ETHANOL: SUPPLY & DEMAND AND WAY FORWARD**

# Flow of presentation

- ❖ Supply EOIs by OMCs and improvements required therein
- ❖ Registration of Vendors (Distilleries) & changes needed
- ❖ Augmentation of capacities and financing
- ❖ EOI of OMCs for capacity creation and problems therein
- ❖ Suggestions for policy decisions to ensure creation of adequate capacities by 2025
- ❖ Commercial benefit of higher octane number of ethanol
- ❖ Replace chemicals by petrol as the denaturant
- ❖ Payments in 10 days

# First EOI for supplies should be invited in September

- Timing of first EOI important to ensure ethanol supplies start by 1<sup>st</sup> Dec.
  - From date of EOI: pre-bid meetings, time for submission of bids, time for allocation & issue of LOIs, submission of BGs, signing of Agreements, issue of POs & indents, despatches & time to reach depots.
- In last 5 years the first EOI was invited on
  - 2021-22 ESY: 28 Oct '21
  - 2020-21 ESY: 19 Oct '20
  - 2019-20 ESY: 20 Sep '19
  - 2018-19 ESY: 10 Aug '18
  - 2017-18 ESY: 17 Oct '17
- 1<sup>st</sup> EOI should positively be invited in **September every year**
  - **If Sept. EOI is made mandatory, it will help producers plan in advance**

Supply EOIs has to mention ethanol procurement price. Thus, **ethanol prices be fixed/announced by mid-September**

# Subsequent EOIs for supplies are uncertain

- **Timing of subsequent EOIs uncertain**

- 2020-21 ESY: 2<sup>nd</sup> EOI on 11<sup>th</sup> Nov 2020

- : 3<sup>rd</sup> EOI on 26 Mar 2021 (gap of 4.5 months)

- : 4<sup>th</sup> EOI on 25 May 2021 (gap of 2 months)

- Such big gaps force producers to look at alternate demand

- New distilleries are unable to plan their production and supplies

- 2021-22 Supply EOIs better: one EOI each month, but dates different

- 1<sup>st</sup> EOI on 28<sup>th</sup> Oct 2021

- 2<sup>nd</sup> EOI on 26<sup>th</sup> Nov 2021

- 3<sup>rd</sup> EOI on 25<sup>th</sup> Dec 2021

- 4<sup>th</sup> EOI on 31<sup>st</sup> Jan 2022

## Certainty of subsequent EOIs (for supplies)

- **One EOI every month on 1<sup>st</sup> of each month (12 EOIs from 1<sup>st</sup> Nov)**
- Certainty of EOI date will ensure higher ethanol supplies. Request to lay down specific schedule for clear visibility to help producers plan better:
  - ✓ Date of EOI be fixed as 1<sup>st</sup> of each month
  - ✓ Bid submission by 3<sup>rd</sup> of the month
  - ✓ Finalization/issue of LOI by OMCs by 5<sup>th</sup> of the month
- Finalisation of bids/allocation of depots is taking 14 days or more
  - Bids are online, depot allocations can be done through specific software (will reduce time)
- Can be further rationalized if instead of EOI, OMCs can simply post details of depots & quantities on their “ethanolforindia” Portal and seek bids

# Approval of Ethanol Vendors for registration

- Vendor registration system started in 2020-21, for 5 years upto 2025
    - Main purpose was to avoid submission of documents in every EOI
  - OMCs invite applications from distilleries, thru' EOIs, with a last date
    - However, the EOIs for vendor registration has improved recently to bi-monthly
      - 02/08/2021, 06/10/2021, 24/12/2021, 01/02/2022, 17/02/2022
      - But still have a closing date
  - Distilleries can bid in supply tenders only after getting registered
    - Hence, delay in vendor registration makes suppliers miss the next tender
- **Request: Vendor registration should always be 'open' with no last date**

# To help achieve targeted blending of 20% by 2025

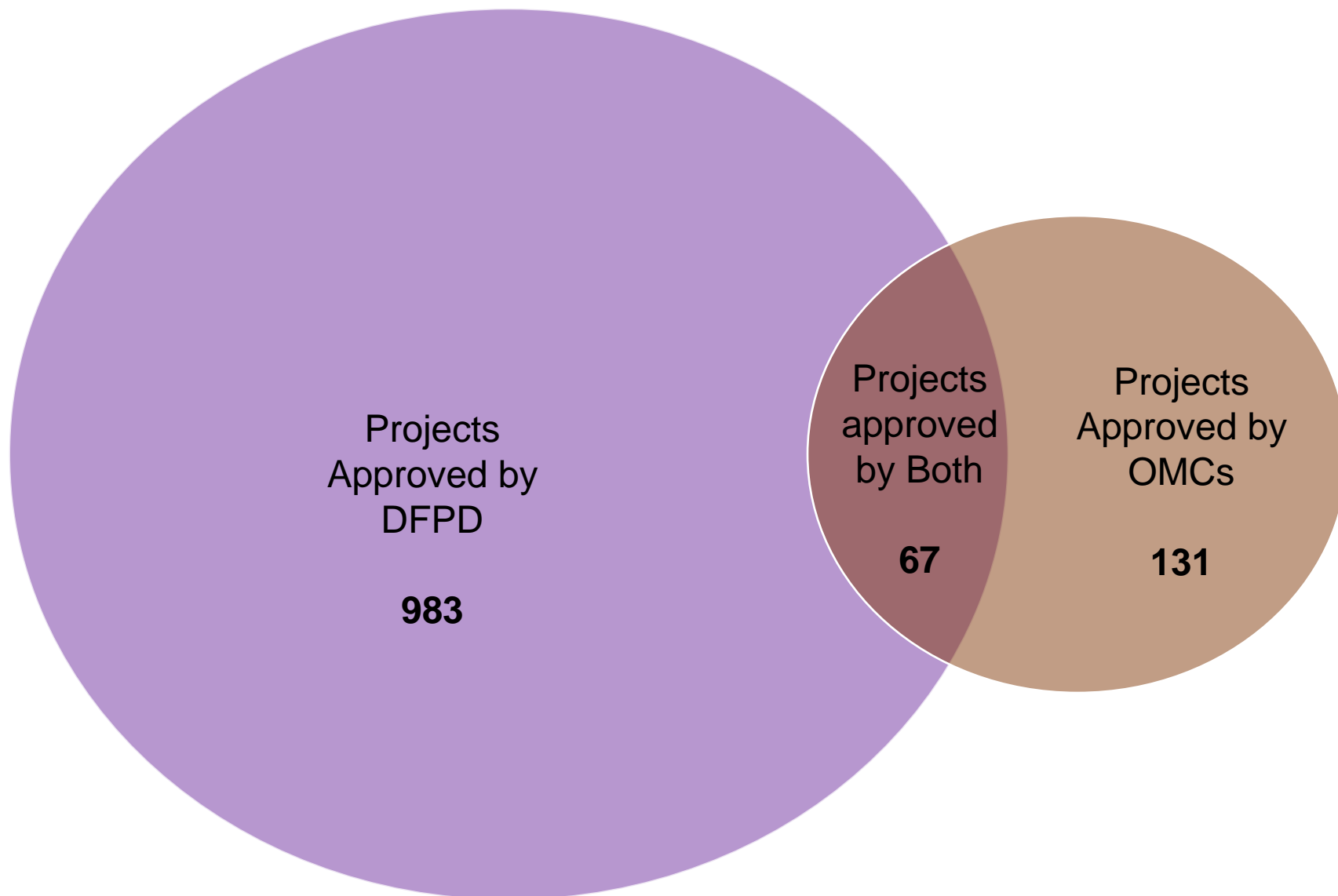
- Need to create/augment **production capacities**, both in cane/molasses and grain based distilleries
  - To be able to supply 1020 crore litres of ethanol for blending with petrol
- **Demand** for ethanol blended petrol needs to be increased phase-wise to 20%
  - 10% in 2022 to 12% in 2023, 15% in 2024 and then to 20% in 2025
- **Infrastructure** at depots of OMCs incl. augmentation of storage capacity
  - To avoid delays in decantation and delays in indents from some depots
  - Each depot of OMCs should be asked to certify in writing to MoPNG and DFPD about their full preparedness and infrastructural requirement
- **Auto makers** also need to produce E20 vehicles as also **flex fuel vehicles**

# Production capacity creation: List of DFPD & OMCs

- **DFPD** has been encouraging ethanol capacity creation since 2018
  - Around 983 projects have in-principle approval under interest subvention schemes
  - However, several are non-serious or not credit worthy, but blocking space
- **EOI by OMCs** in Aug '21, State-wise, for 648 cr. litres of additional capacity creation
  - OMCs have signed BPAs with about 131 project proponents, for around 400 cr. litres of annual capacities
  - Tri-partite agreements (**TPAs**) to be signed amongst PPs, OMCs and Banks, **yet to be finalized** between OMCs and SBI



## DFPD approved projects and OMCs' shortlisted projects



# Problems in the EOI of OMCs for BPAs/TPAs

- “SOP cum Guidelines” of Banks to make loans easier for ethanol projects
- The SOPs require fulfilment of **both** the following conditions:
  - a) In-principle approval of DFPD and
  - b) BPAs/TPAs between OMCs and project proponents
- **Thus only 67 projects are eligible under SOP**
  - Most project proponents have planned their projects on concessional debt:equity & collateral security, as under SOP cum Guidelines.
  - But some out of these 67 may **not be found credit-worthy**.
- Banks reluctant in giving loans if projects don't have BPAs with OMCs
  - As also if they don't have DFPD approval
- **Have to find ways to enlarge the common list**

# Problems in the EOI of OMCS for BPAs/TPAs

- Sugarcane/ sugar producing States have been discouraged in the EOI
  - UP given zero allocation, Maharashtra 8.9 crore and Karnataka 18 crore litres only
  - States like Rajasthan, Kerala, TN, etc. allocated 54, 55, 97 crore litres respectively
- Sugarcane as a feedstock given lowest priority in marking
  - Only maize = 20 marks, Maize/rice = 15 marks, Cane/molasses = 10 marks
  - In fact, if any feedstock is/was being given priority, it was/is sugarcane & molasses
- Ethanol policy of Govt. has been to divert excess sugarcane/sugar to ethanol
- **Recent supply tenders intend giving preference to projects signing BPAs, over existing suppliers**
  - Even contracted quantities of existing suppliers can be replaced or reduced
  - Causes uncertainty amongst existing suppliers, who can't plan production
  - **Unfair because existing distilleries not given chance to sign BPAs**

# Capacity reqd. from ALL to achieve 20% blending by 2025

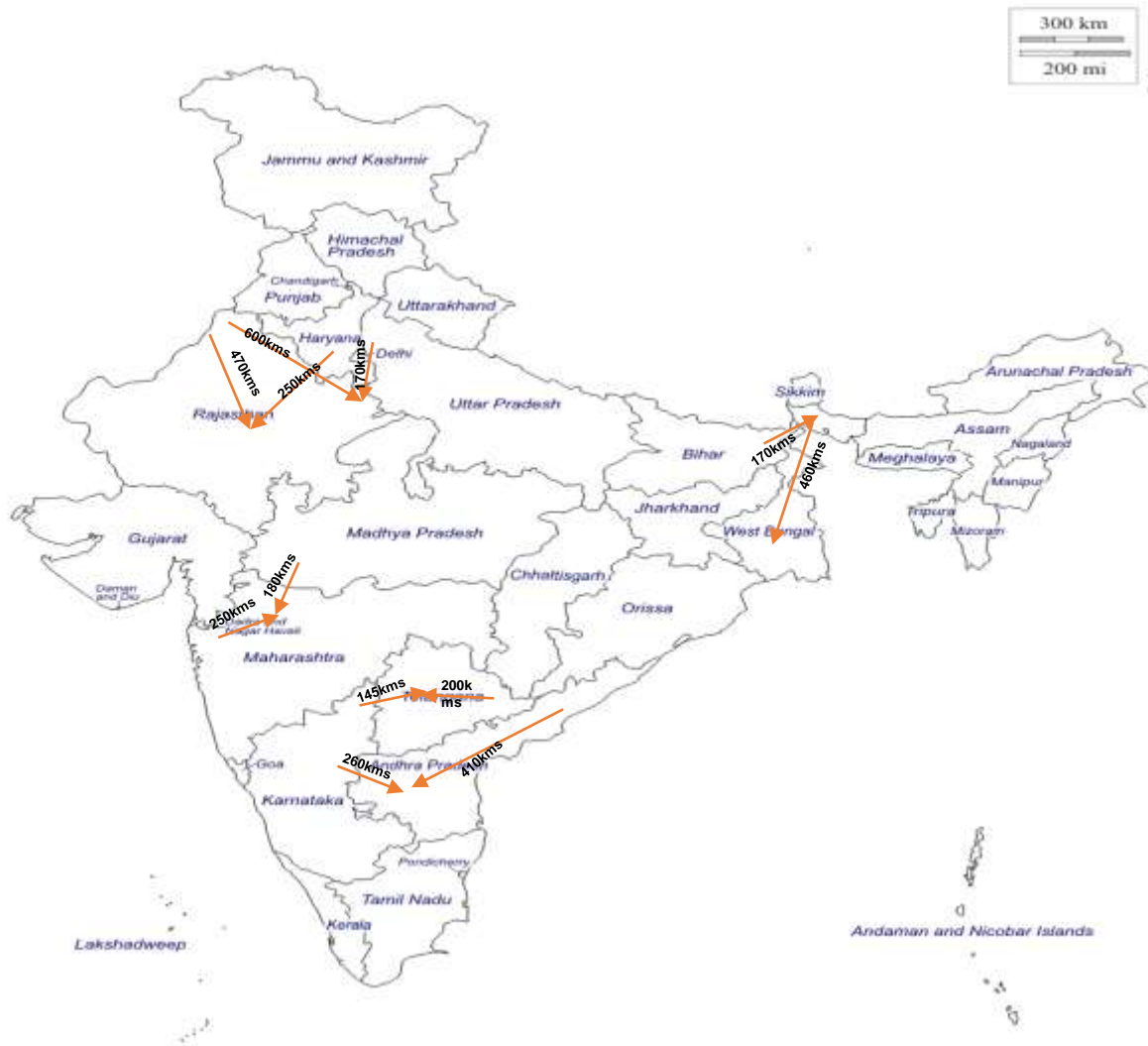
(In crore litres)

<b>Current &amp; required capacities</b>	<b>Cane/ molasses</b>	<b>Grain- based</b>	<b>Total</b>
Ethanol/alcohol capacity required in 2025	760	740	1500
Current ethanol/alcohol capacity	445	258	703
Capacity to be added	315	482	797
<b>Ethanol requirement for 20% blending in 2025</b>	550	446	1016

Source: Niti Ayog

- Important to note that **another over 300 crore litre of capacity is still required in cane/molasses based distilleries**
- Also important to note that **75-80% of sugarcane is produced by farmers in 3 States: UP, Maharashtra and Karnataka**
- But policy of OMCs to restrict long term BPAs with cane/molasses based distilleries and Sugarcane States will discourage investments therein

# State-wise reservations will mean crisscross movement



Remove the criteria of State reservations and restore earlier practice of minimum distance criteria and priority to cane/molasses ethanol

# To overcome current problem of finances & capacities

- Immediate need to resolve the current problem of “common list”
- Review OMCs’ policy of restricting new capacity creation in some States
- Since Banks are willing to sanction loans under SOP, and **make DFPD approval and BPA with OMCs a pre-disbursement condition:**

**“Projects having sanctioned bank loans, should get in-principle approval of DFPD approval BPAs signed, within 7 days from date of application by PP”**

- Otherwise, capacity creation will see a major fall, and achieving 20% ethanol production by 2025 will become extremely difficult
- **Sign BPAs with existing distilleries too** (BPAs for only about 400 cr. litre signed)

# Octane value of ethanol is higher than petrol

- Octane is defined as the measure of a fuel's ability to resist "knocking" or "pinging" during combustion, caused by the air/fuel mixture detonating prematurely in the engine.
- Octane no. of ethanol is around 109, while that of petrol is around 87
- Adding ethanol to petrol automatically increases octane of blended fuel
- Increasing pressure in the cylinder allows an engine to extract more mechanical energy from a given air/fuel mixture, but requires higher octane fuel to keep the mixture from pre-detonating. In these engines, high octane fuel will improve performance and fuel economy.



- Octane rating of fuel at retail pump
- Some countries have octane rating of 97 and 99
- India has a requirement of RON 91 at retail pumps

# Use of synthetic octane enhancers

- Currently, Oil companies manufacture and add synthetic octane enhancers viz. called aromatics (benzene, toluene, xylene) to petrol
  - While aromatics do increase octane, they are often harmful to the environment. One such was MTBE which was eventually banned due to its toxic content.
- “According to the US EPA’s Urban Air Toxics report, *current aromatics like benzene, toluene, ethyl benzene, and xylene **have cancer-causing emissions** since they emit particulate matter and aromatic hydrocarbons that can damage the immune, respiratory, neurological, reproductive, and developmental systems.*”
- **And above all, aromatics are expensive to produce and increase fuel costs.**



# Commercial value of ethanol

- Ethanol reduces vehicular emissions, thereby improving air quality
  - Reduces net oil import bill for India, as also directly benefits Indian farmers/agriculture as also the indigenous industry, helping also in job creation
- Ethanol has lower energy as compared to petrol, but has high oxygen content
  - Hence, used as an oxygenate or oxygen booster, which helps burn the balance fossil more efficiently within the engine
- Need to commercially tap the higher octane value of ethanol
  - Adding ethanol to petrol automatically increases octane rating of the blended fuel
  - Reduces need to manufacture aromatics, save on costs thereof as also avoid use of toxic material in the fuel
  - Ethanol is cheaper than synthetic aromatics. (*Illinois University in US calculated that ethanol is cheaper than benzene/toluene etc by 35 cents to \$1 per gallon*)

# Commercially tapping the higher octane of ethanol

- As per Regulation, fuel dispatches from Refinery should have **min. 91 RON**
- Whereas, ethanol blending with petrol is done at **depots** across the country
- That means that when 108 RON ethanol is blended with 91 RON petrol it further increases the RON to 95 or more
  - Blendstock RON 88 provides ~92.5 RON at E10
  - It is estimated that RON increases to 94.3 for E15 and to as much as 98.6 for E30
- Suggestion:
  - OMCs be advised to use the octane advantage commercially to reduce costs
  - Allow lower RON fuel to be dispatched from Refineries, with condition to achieve 91 RON while despatching from Depots and at retail pumps
- Will encourage OMCs incl. private cos., to use more ethanol, for higher blends

# Use Petrol as Denaturant

- Currently, the following chemicals are used simultaneously as denaturants
  - Crotonaldehyde 0.2% (liquid form) and Bitrex (denatonium benzoate) (powder form)
- Brazil uses Petrol as the denaturant for very long
- Indian standard IS 4117:2008 prescribes petrol as denaturant for gasoline and above chemicals as denaturants for Spl. Denatured Spirit (and not for gasoline)
- India should also use petrol as the denaturant
  - Will save costs to both producers and oil companies
  - Will avoid the use of chemicals unnecessarily
  - Will make the fuel more environment friendly
- However, cost of petrol as denaturant will be higher than the chemicals
  - Petrol addition by OMCs in the blend will reduce,
  - So part of savings to OMCs be passed on to producers of ethanol

## Faster payments for ethanol supplies

- Tender conditions prescribe that ***“100% payment shall be made within 21 days after receipt of material at our sites & submission of Original Invoice(s)”***
- Considering transport time from distillery to Depot, delays in some places to decant the tankers and then physically submit original invoice(s)
  - **Total time taken from “despatch to receipt of payment” becomes over 30 days**
- Private Oil companies pay immediately on despatch from distillery
  - Alcohol/RS buyers in fact pay in advance
- Request that payment from OMCs be released within **10 days** from receipt of ethanol at the depots and submission of original invoice(s)

THANK YOU