



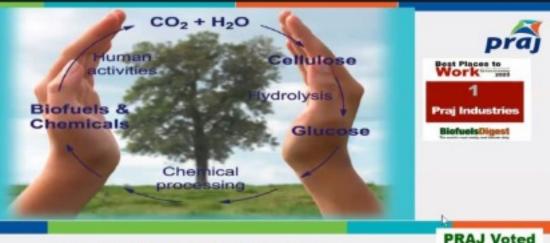




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# IMMERSIVE TALKS

WITH WASTE-TO-VALUE (W2V)DOMAIN EXPERTS Renewable Chemicals and Materials : The Nature Reimagined by Dr. Pramod Kumbhar (President & Chief Technology Officer, Praj Industries Ltd)



Renewable Chemicals and Materials **Nature Reimagined** 

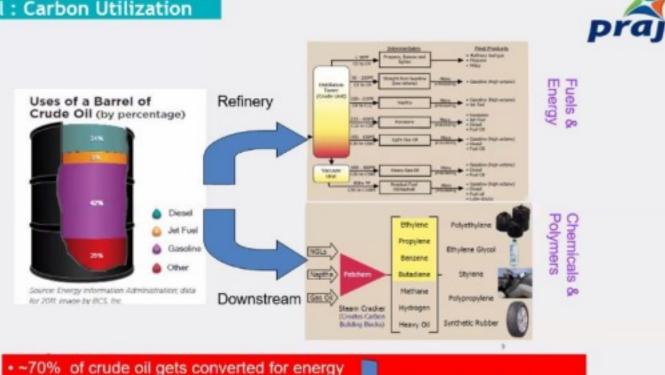
Dr. Pramod Kumbhar President and CTO Praj Matrix - R&D Center

17th September 2020

**PRAJ Voted** Amongst Ho50 2019



### Crude Oil: Carbon Utilization



## Bio-MobilityTM platform from Praj

Bio-Mobility™ denotes carbon neutral renewable transportation fuel produced from Biological resources



- Demand for transportation fuel is ever rising
- Transportation sector the major contributor to rising GHG emission
- Both, major cause for environmental Pollution and major health hazard
- Bio-Mobility<sup>TM</sup> based transportation helps minimize carbon footprint

Facilitates sustainable decarbonization through circular bio-economy

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## Choosing wisely: Approach to Development (5/5/)

# **Product Market Value**

< 5% for chemicals and polymers

100 % carbon utilization for value addition

Economics (CapEx/OpEx)

# **Process Development**

Operations Temperature Process Design/Flow

Mass Transfer Robustness Equipment Designs Catalysts/Organism

#### Market Need Based Approach

Determine market need Determine Required Economic Performance

Generate same revenue

- Define process CapEx/OpEx
- Define Organism performance Requirements
- Define Pathway requirements Define Enzyme requirements
- Then apply development skills and tools

#### **Fermentation Development**

Contaminant Management Mass Transfer Micronutrients Microbiology

#### Organism Development

Pathway Engineering Microbial Physiology

Genetic Engineering

Gene Shuffling Genomics

## Plastics: The Inconvenient Truth

