

“Praj’s Bio refinery solutions driving Bio Mobility”



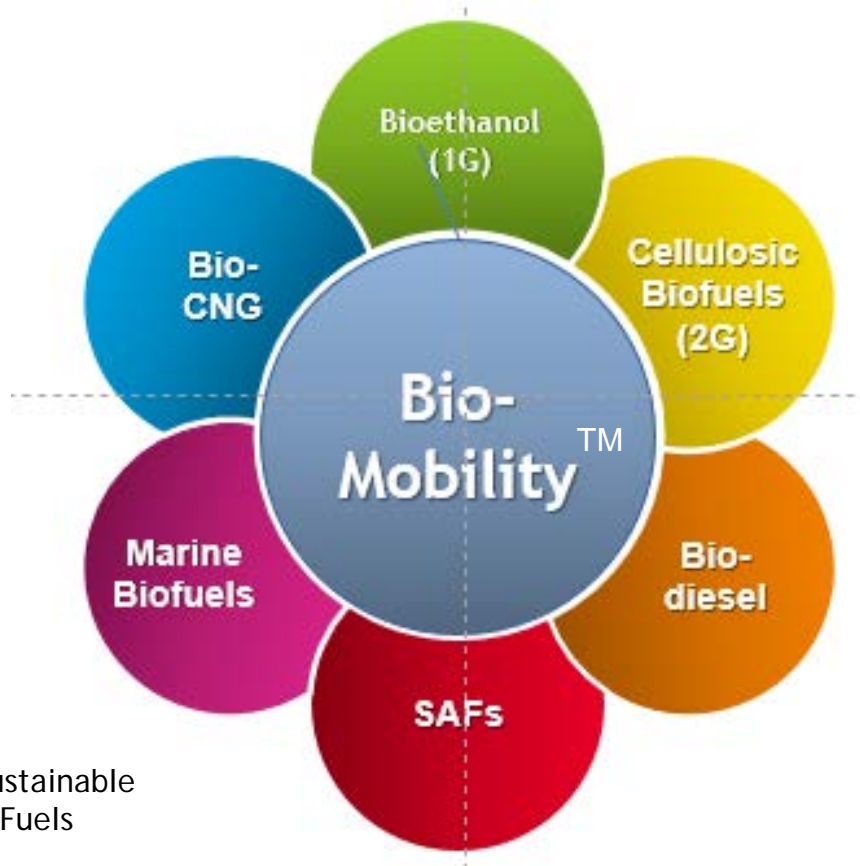
Mallikarjun Navalgund
President, ABFC, Praj Industries Ltd



Bio-Mobility™



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



*SAFs- Sustainable Aviation Fuels

- **Demand** for transportation fuels is **ever rising**
- Transportation sector the **major contributor** to rising **GHG** emission
- **Stubble burning** causing brown clouding
- Both, major cause for **environmental pollution** and **health hazards**
- **Bio-Mobility™** based transportation helps minimize **carbon footprint**

Bio-Mobility™ facilitates decarbonization through circular bio-economy



Demo and Commercial Projects for driving Bio Mobility

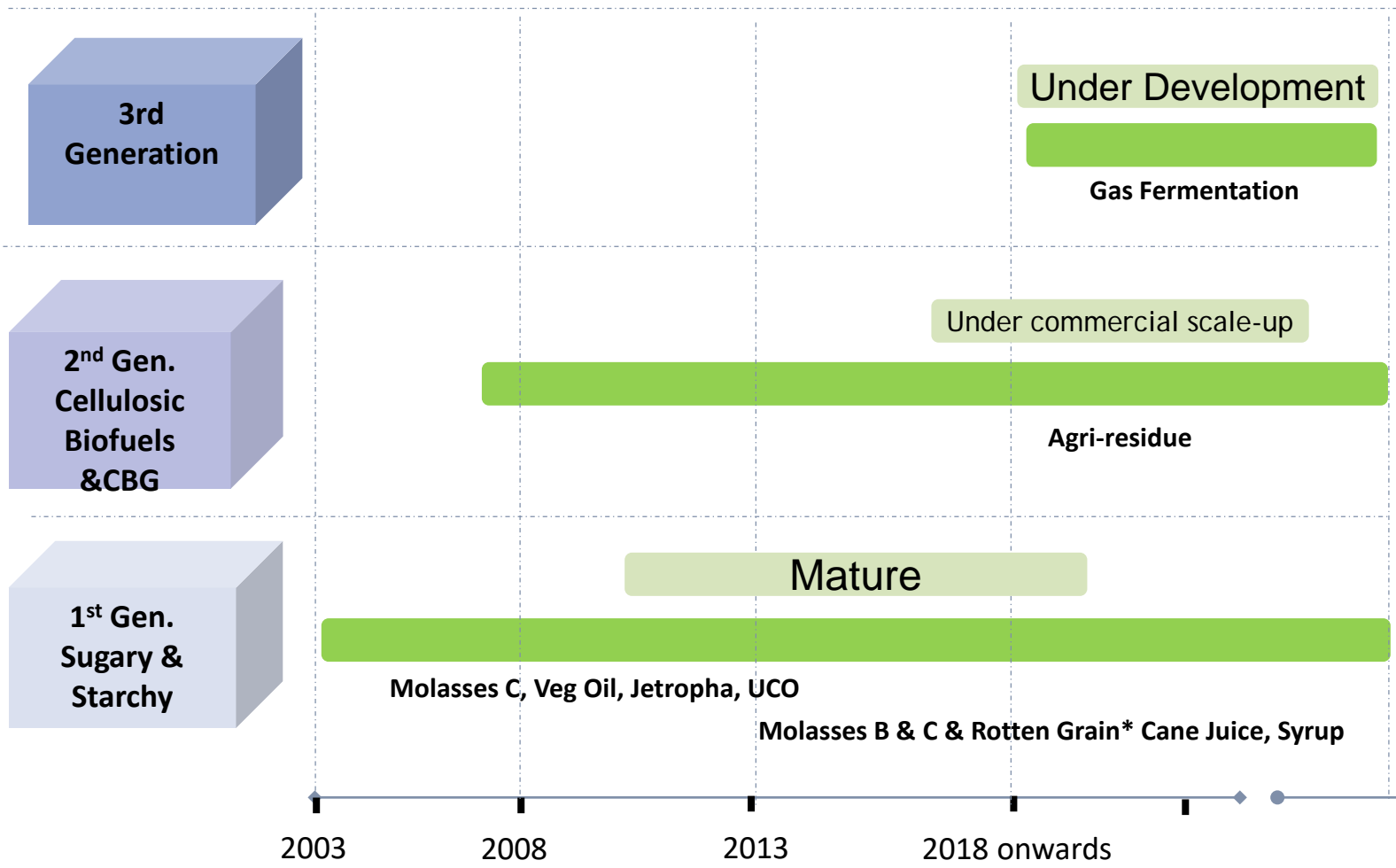


Projects 2G Ethanol	Capacity & Feedstock	Status
Praj , Pune	Demonstration Plant 3 KLPD	Commissioned in 2016 and operated more than 100 days on different biomass
 IOCL, Haryana (License + Proprietary + EPCM)	100 KLPD, Rice straw	Construction started, expected commissioning in June 2021
 BPCL, Orissa (License + Proprietary)	100 KLPD, Rice straw	All contracts finalized ,expected commissioning in June 2021
 HPCL, UP (License + Proprietary)	100 KLPD, Rice straw and Bagasse	BEDP completed, execution model TBD
 MRPL, Karnataka (License + Proprietary)	60 KLPD, Corn residue and rice straw	BEDP completed, execution model TBD
Project on CBG		
IPL, UP (LEPC)	10 TPD CBG , Press-mud	BEDP completed, commissioning in Aug 2020

International energy companies completed the due diligence of 2G technology



Technology Evolution



Product Basket

- Ethanol – 1G,2G
- CBG (Compressed Bio-gas)
- SAFs (Sustainable Aviation fuels)
- Renewable Chemicals
- Bio-Diesel
- Marine Biofuels

*Unfit for human consumption

Transformation from hydrocarbon to carbohydrate led Bio-economy



Advanced Bio-Mobility™ Technologies



2nd Gen ethanol

Produced from agri-residues such as Bagasse, Corn Cobs, Rice Straw, Wheat Straw etc

Marine Biofuels

Produced from Lignin based feedstock



Sustainable Aviation Fuel (SAF)

Bio-based jet fuel produced from renewable sources e.g. sugars, starch and biomass

Bio-CNG

Produced from renewable feedstock such as Bio-mass, Press mud etc



Bio Diesel

Efficient and cost effective Enzymatic technology

Facilitate energy self reliance, economy & growth of farming community





2nd Gen SMART Bio-refinery demonstration plant for ethanol & bio-chemicals



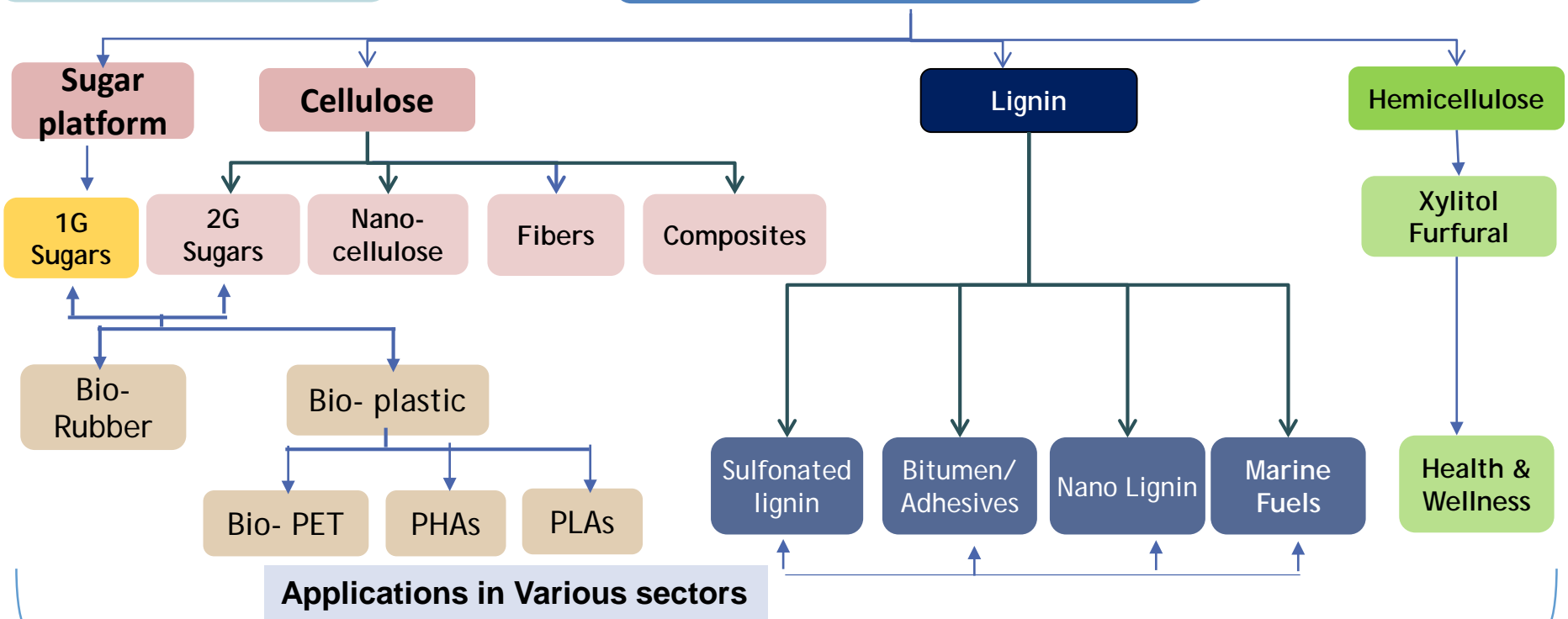
THANK YOU



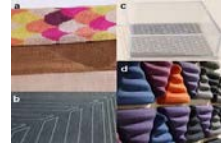
Advanced Bio-chemicals: Smart Biorefinery

Biomass (Bagasse, Straw, Softwood, Hardwood)

Advanced Chemical and Biochemical Fractionation Technologies



Applications in Various sectors

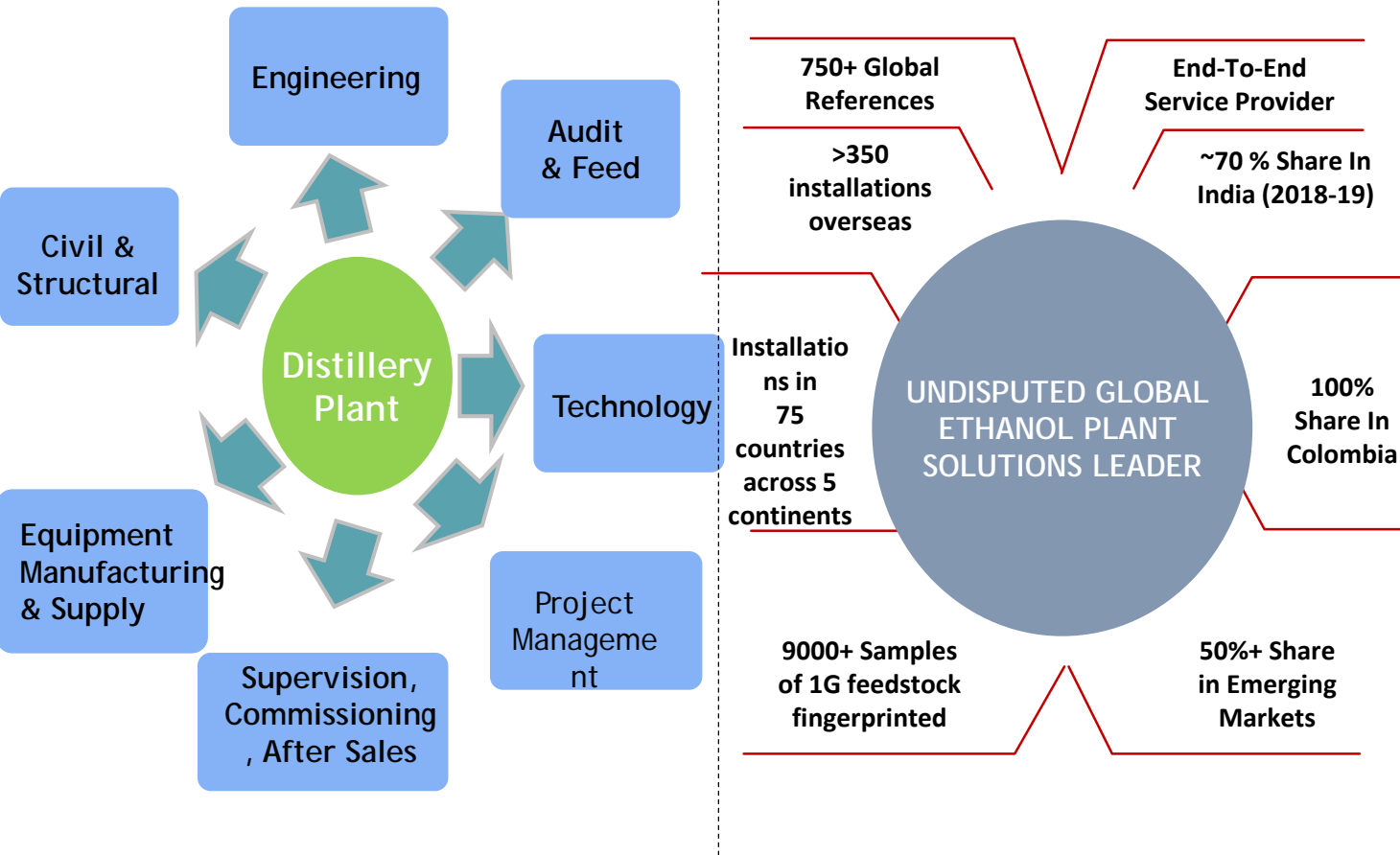


Rubber & Plastics

Textiles
Fabrics

Polymers, Adhesives, Roads, cement applications,
agriculture

Praj's Global Bioenergy Leadership







Only Ethanol Technology player with references across 5 continents
 Demonstrated Large Plant Capacity up to 1.2 MLPD (1200 KLPD)



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