

# Make Millions with "E-max" Technology

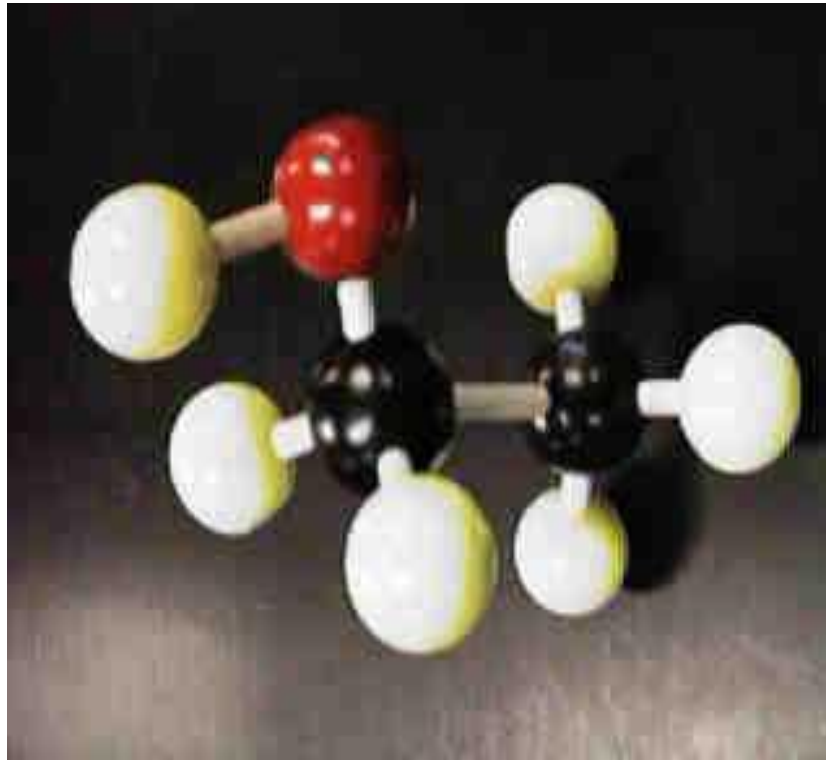


## INDIA'S FASTEST GROWING TECHNOLOGY & EPC COMPANY

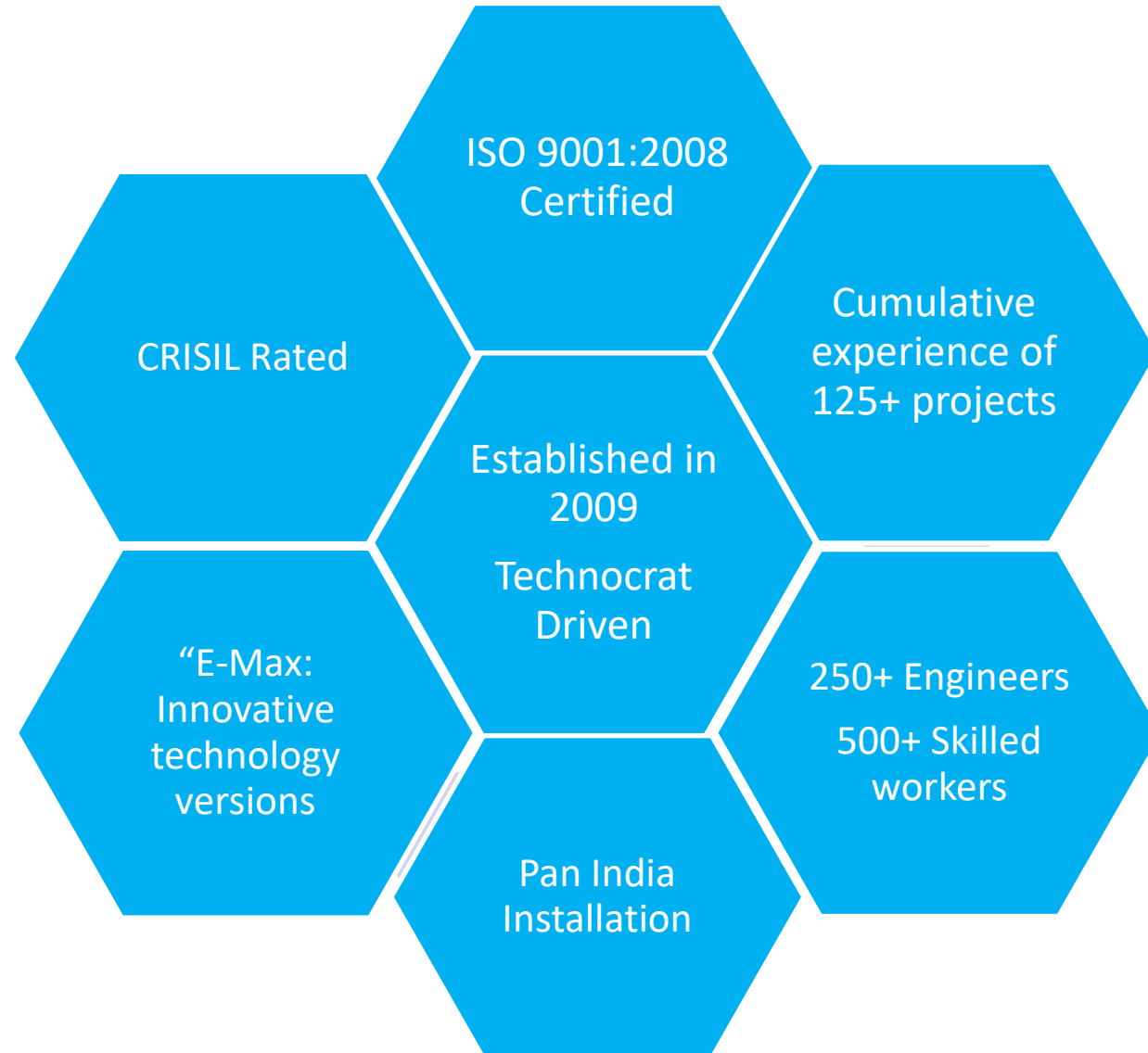
DISTILLERY & ETHANOL  
ZEROS  
LIQUID DISCHARGE  
SUGAR  
& COGENERATION  
WASTE  
HEAT  
RECOVERY  
WATER  
& WASTE WATER  
BIOMASS  
POWER  
RENEWABLE  
ENERGY  
BIOFUELS



# ethanol



# ABOUT US





# Vision

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To Become a global leader in the field of bioethanol / biofuel and distillery providing advanced “E-max” technologies with high energy efficiency, low water foot print, net carbon zero sustainable environmental solutions.

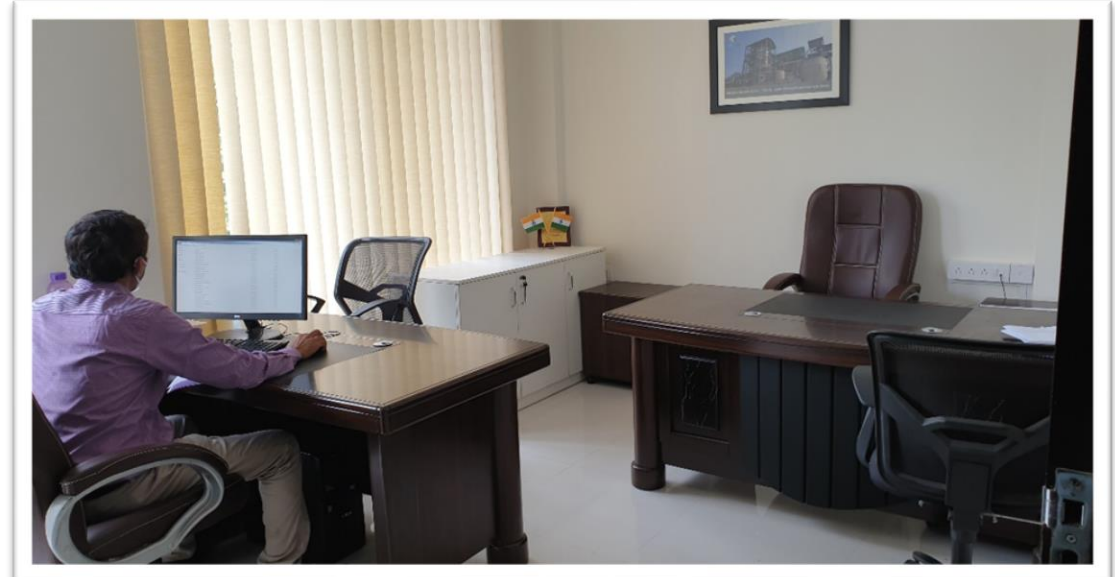








# Head Office and R & D Centre



# Manufacturing Facility

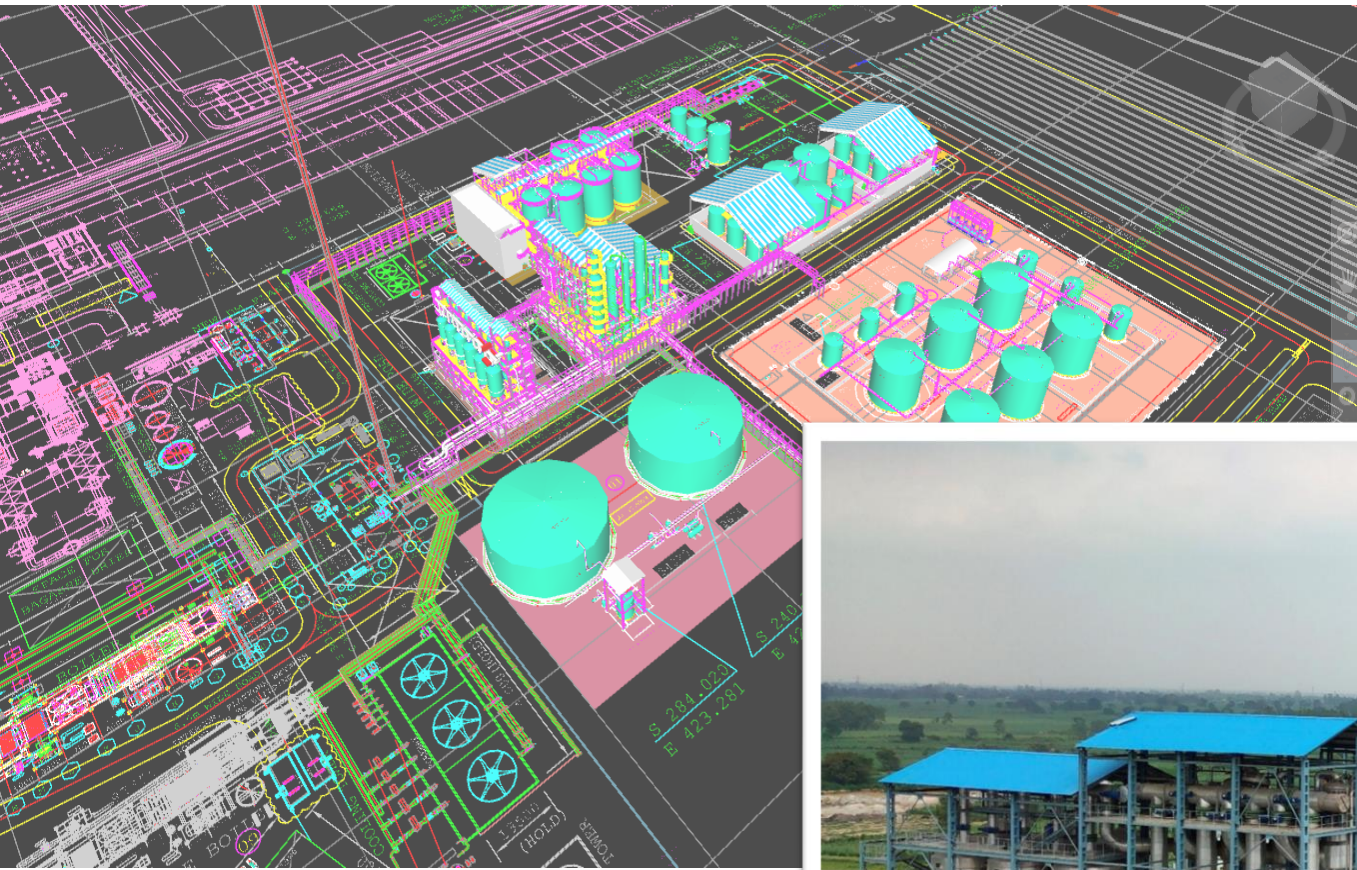


- Well established workshops in Pune, Kanpur Ghaziabad, Durgapur & Kolhapur PAN INDIA
- 100% Inhouse fabrication Capability
- Modern Facilities with CNC Machining drilling, bending expending, cutting, auto welding etc
- Stage wise inspection by TUV / other TPI agencies
- Regular Export of equipment
- Large equipment fabrication Capability
- More than 10000 equipment delivered



**EXCEL- PUNE WORKSHOP**





# Actual Installation



3D  
Software





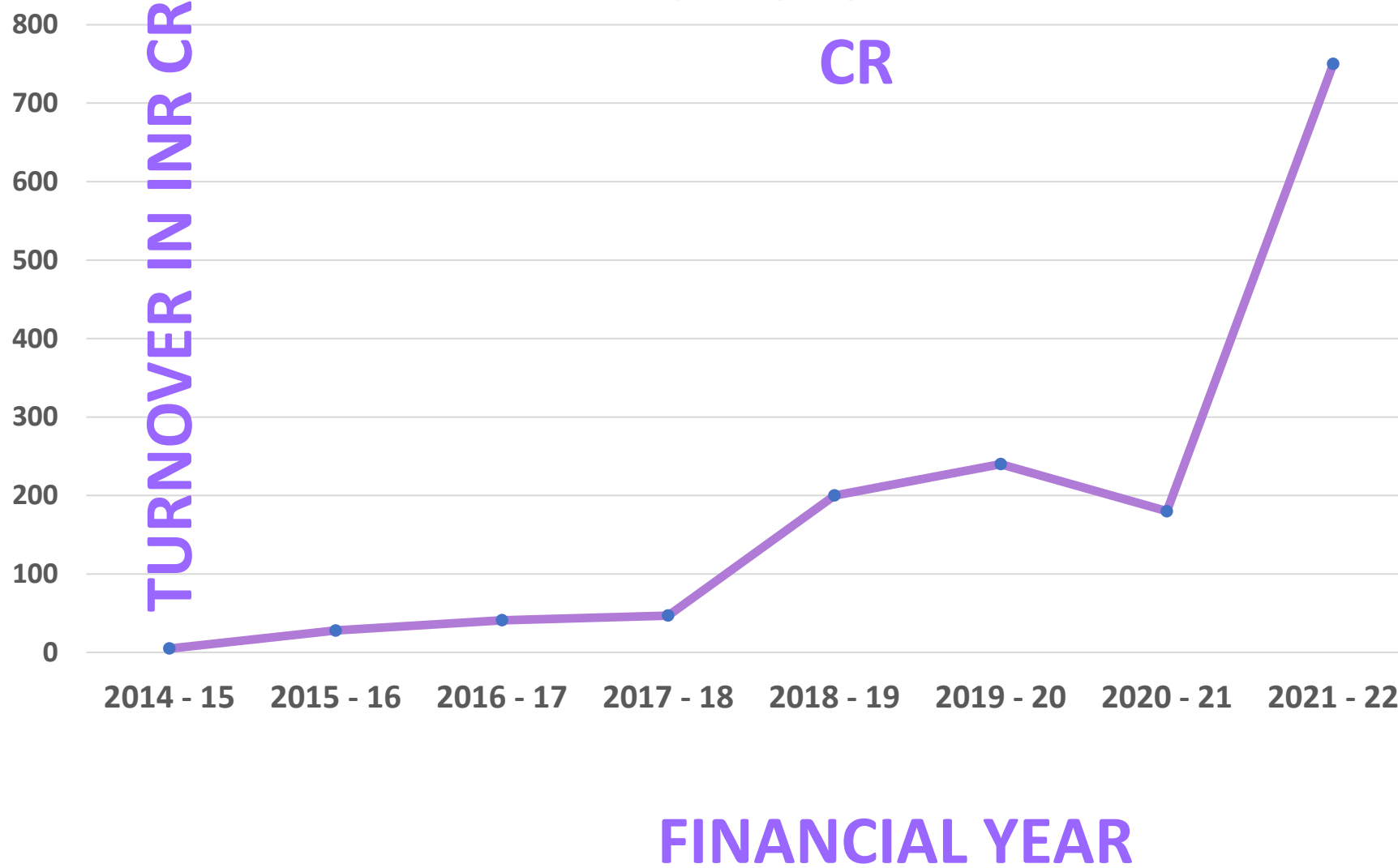
# Key Highlights of "E-max" Installations



- India's Largest Grain ENA Distillery – 450 KL
- India's Largest Molasses Distillery – 800 KL
- India's Largest Syrup/Grain Distillery – 360 KL
- India's Largest Ethanol Dehydration Plant- 275 KL
- India's Lowest Steam Grain distillery (+Dryer) at 3.75 kg/litre
- India's Lowest Steam Molasses distillery (+Evaporation) at 2.75 kg/litre
- India's only DDGS Dryer Vapor Integrated MEE Evaporator (DVI).
- India's Only Direct PRC Vapor Driven MSDH Ethanol Plant
- India's Single Largest DDGS Dryer- 1600 m<sup>2</sup>
- India's Largest spent wash Evaporator with 1500 m<sup>2</sup> HTA.
- India's only 365 days non stop automatic Operation of MEE
- EPC Distillery Plants with Boiler, TG, CPU, utilities and WTP etc.



# Turnover in INR CR





EXCEL ENGINEERS & CONSULTANTS  
REGREEN EXCEL EPC INDIA PVT LTD



## ROADMAP FOR ETHANOL BLENDING IN INDIA 2020-25



NITI Aayog | Ministry of Petroleum and Natural Gas



## PETROL DEMAND

### Projections as per the 'Report of the Working Group on Enhancing Refining Capacity by FY 2040

Product / Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Motor Gasoline (MMTPA)*	27.7	31	32	33	35	36	37	39	40	41
Motor Gasoline (Cr. Ltr.)	3908	4374	4515	4656	4939	5080	5221	5503	5644	5785

\* Interim figures from PPAC considering growth @ 3-4% YoY (Source: MoP&NG)

\* Projection interval is for 5 years and the data has been linearly extrapolated.

The effect of COVID pandemic and introduction of EVs are considered.



# ETHANOL DEMAND



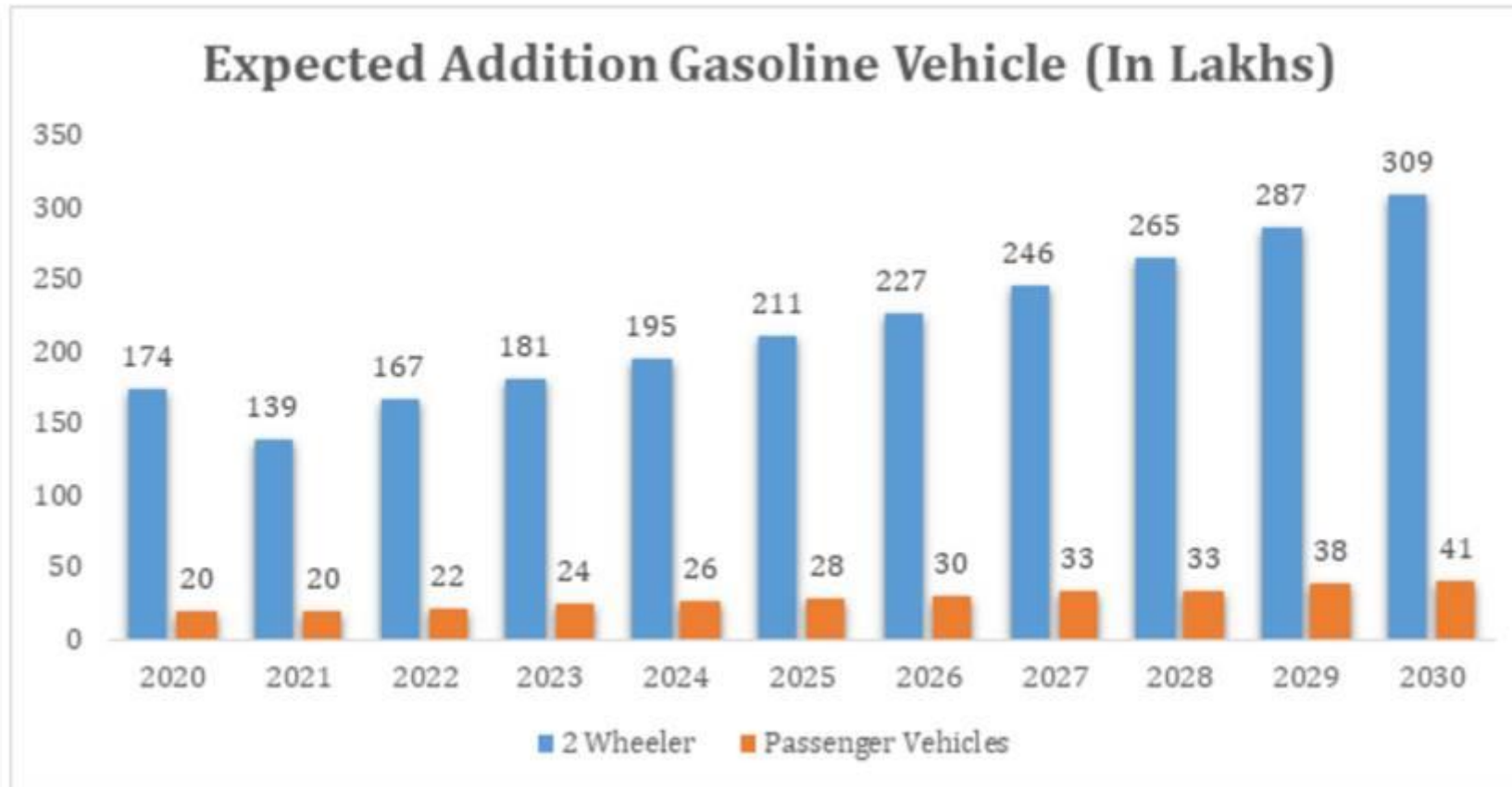
Ethanol Supply Year	Projected Petrol Sale (MMT)	Projected Petrol Sale (Cr. litres)	Blending (in %)	Requirement of ethanol for blending in Petrol (Cr. litres)**
A	B	$B1 = B \times 141.1$	C	$D = B1 * C \%$
2019-20	24.1 (Actual)	3413 (Actual)	5	173
2020-21	27.7	3908	8.5	332
2021-22	31	4374	10	437
2022-23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

\* The petrol projections may undergo revision due various factors like penetration of EVs, etc.

\*\* The figures are optimistic, as the E20 fuel will be consumed by new vehicles from April 2023 only. The demand for ethanol will, however, increase due to penetration of E100 two wheelers, which are now being manufactured in the country.



# PETROL VEHICLE GROWTH



# EMISSION BENIFITS



Table 3.1. Emission reduction potential of ethanol-gasoline blends [8]

Emissions	Gasoline	Two-wheelers		Four-wheelers	
		E10*	E20*	E10*	E20*
Carbon Monoxide	Baseline	20% lower	50% lower	20% lower	30% lower
Hydrocarbons	Baseline	20% lower	20% lower	20% lower	20% lower
Oxides of nitrogen	Baseline	No significant trend	10% higher	No significant trend	same

\* E10 project was carried out in 2009-10, E20 project in 2014-15. Hence, the test vehicles were not the same. However, the emission trend is similar.

However it has certain impact on fuel efficiency as well:

- A. 6-7% for 4 wheeler designed for E0 and calibrated for E10
- B. 6-7% for 4 wheeler designed for E0 and calibrated for E10
- C. 1-2% for 4 wheeler designed for E10 and calibrated for E20

## INDIAN CURRENT ETHANOL SCENARIO



- ✓ India, currently 5th largest consumer of energy.
- ✓ India has only 0.4% of world's crude oil reserves
- ✓ India will run out of coal in 40 years.
- ✓ Domestic natural gas reserves are limited as well
- ✓ Petrol demand 40 Billion Litres by the year 2021
- ✓ Government has mandated 20% ethanol blending.
- ✓ India's demand 10 Billion Litres by 2025-26



# GOVERNMENT OF INDIA SUPPORT

- ✓ Mandatory blending for all Petrol - target E 20.
- ✓ Increasing prices of ethanol from 2014 till date.
- ✓ Mega Expansion OMC's Blending facilities PAN India.
- ✓ Eased Environment clearances and lesser time.
- ✓ 6% Interest Subvention scheme for sugar millers & for grain to ethanol projects on CAPEX.
- ✓ Stand alone grain to ethanol project EOI permissions.
- ✓ Lending facility through banks – Heavy encouragement.
- ✓ Flex fuel automobile promotion / introduction

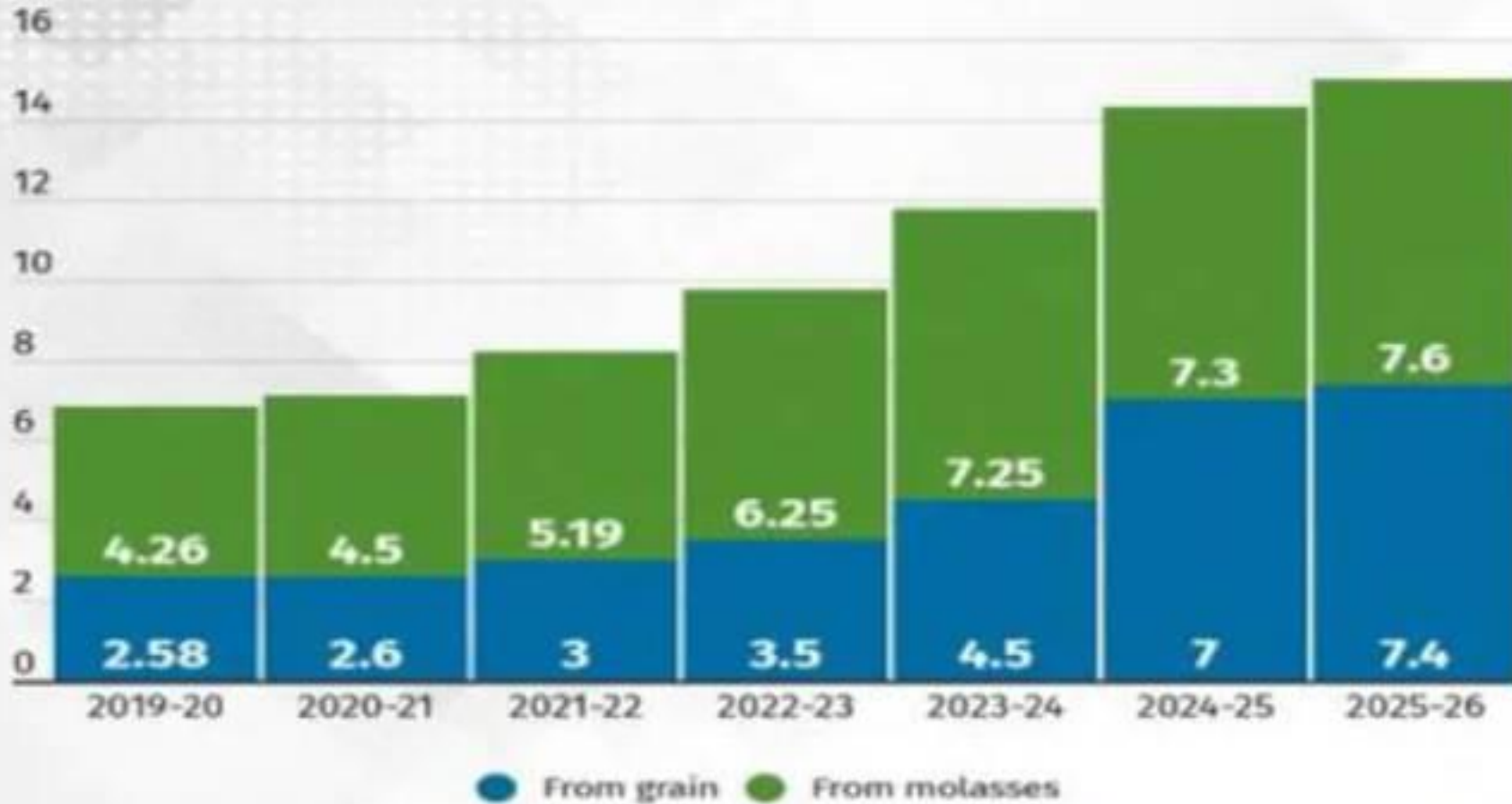


# BLENDING BREAK UP



Government Ethanol Blending Target						
Year	Est. Petrol Sales (MMT)	Est. Petrol Sale (Cr)	Blending	Est Ethanol Blending (Cr Litre)		
				Grain	Sugar	Total
2020	24.1 (Actual)	3413 (Actual)	5%	16	157	173
2021	27.7	3908	8.50%	42	290	332
2022	31	4374	10%	107	330	437
2023	32	4515	12%	123	425	542
2024	33	4656	15%	208	490	698
2025	35	4939	20%	438	550	988
2026	36	5080	20%	466	550	1016

# ETHANOL CAPACITY REQUIREMENT



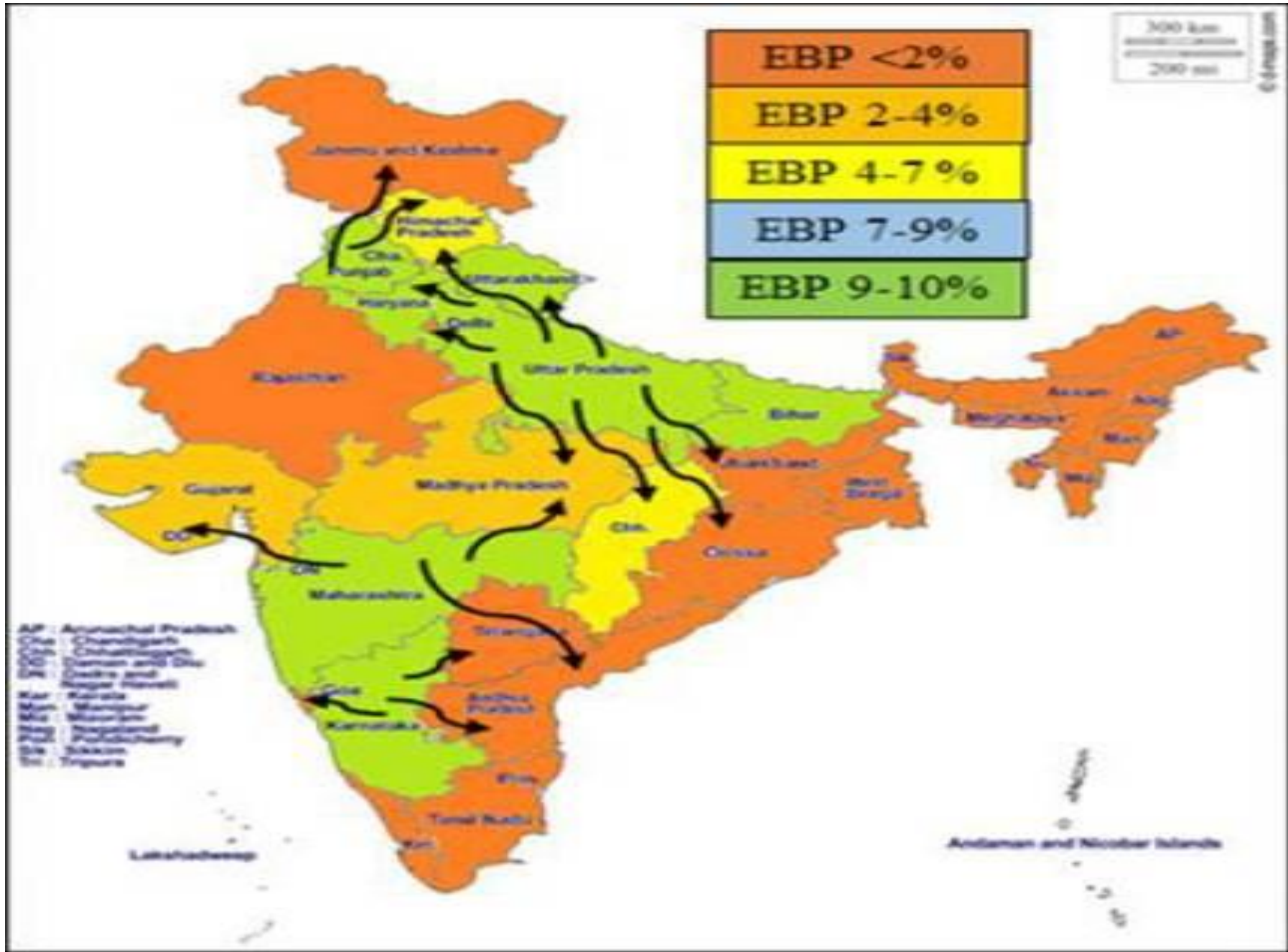
(in billion litres), Source: Niti Aayog



Additional Capacity Requirement (In Cr Ltr)			
Capacity Required	Grain	Sugar	Total
2020	258	426	684
2021	260	450	710
2022	300	519	819
2023	350	625	975
2024	450	725	1175
2025	700	730	1430
2026	740	760	1500

For the estimated ethanol supply of 1350cr ltr, there would additional capacity of 723 cr ltr required to meet the target.

Government is targeting to add 241 molasses based and 482 grain based capacity for ethanol blending for this capacity augmentation.



# INDIA STATUS



- ✓ 9 - 10 % blending is possible now which is 325 cr litres
- ✓ 80% from sugar mills and 20% from grains feed stock
- ✓ 250 Molasses/cane & 25 Grain to ethanol operating plants.
- ✓ New 50 Molasses/cane & 50 Grain plants larger capacity.
- ✓ This will produce 325 cr litres still a gap of 350 cr litres
- ✓ Another New 25 Molasses/cane & 75 Grain plants required.
- ✓ Spirit Grade plants are also required.



# INNOVATIVE TECHNOLOGY DEMAND



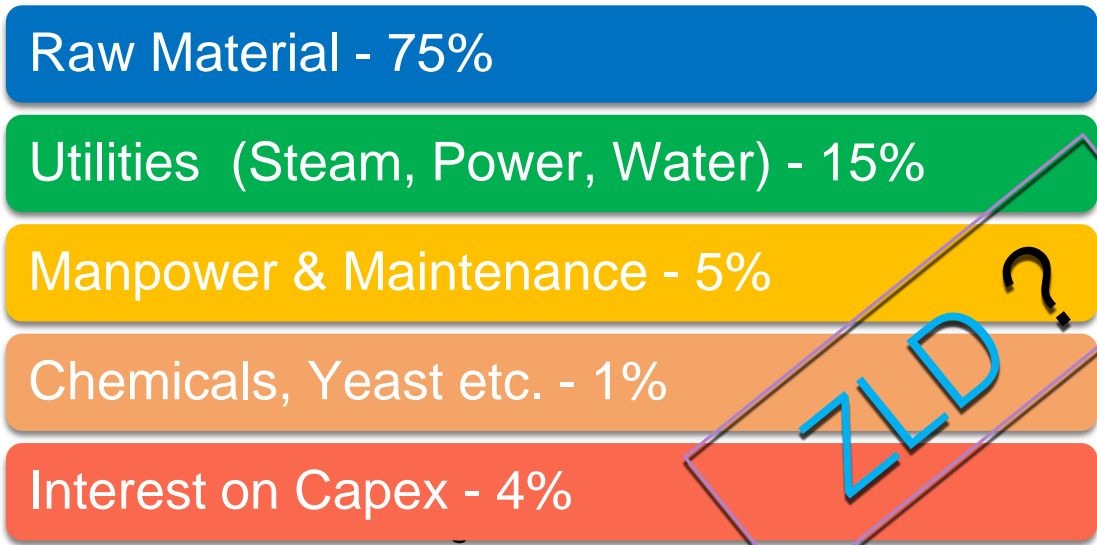
- ✓ Increased demand for higher capacity plants
- ✓ Multi feed stock and multi product plants
- ✓ Low OPEX technology development.
- ✓ Environment friendly and ZLD plants
- ✓ Higher safety norms and requirement of OMC's
- ✓ Higher level of automation / less manpower
- ✓ Diversified business groups investing in Ethanol



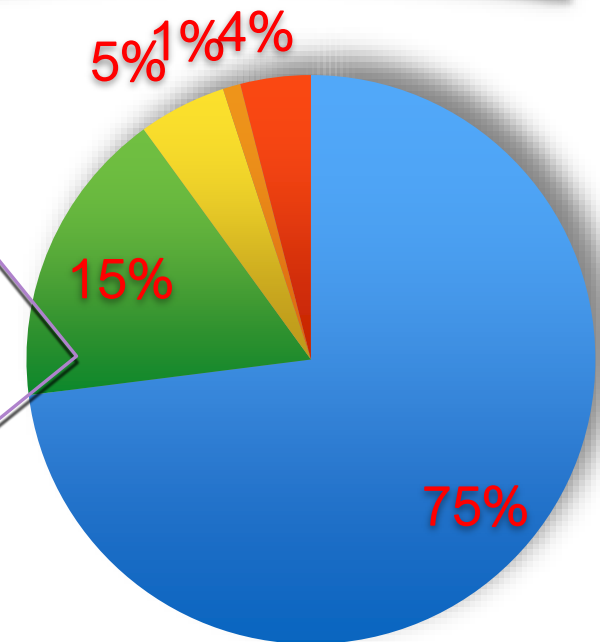
# “E-max” Technology



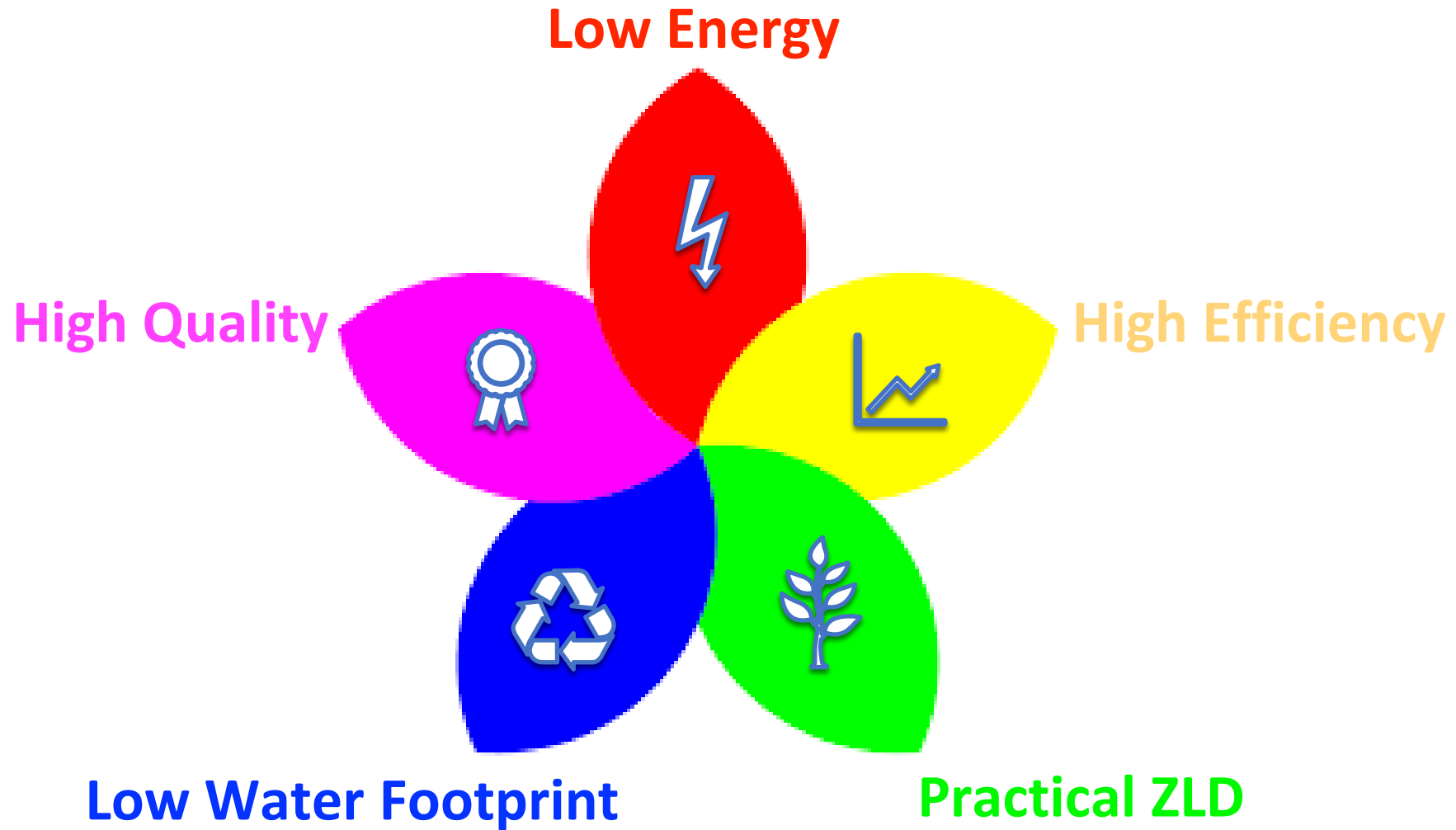
## Continuous Reduction Cost of Production



ZLD ?



# “E-max” Technology





# Feed Stocks for Bio-Ethanol



(1<sup>st</sup>)  
Sucrose-containing feedstocks      Starchy material



Sugar beet



Sugar cane



Wheat



Corn



Sweet sorghum



Barley

(2<sup>nd</sup>)  
Lignocellulosic biomass

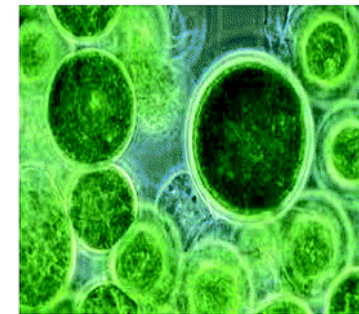
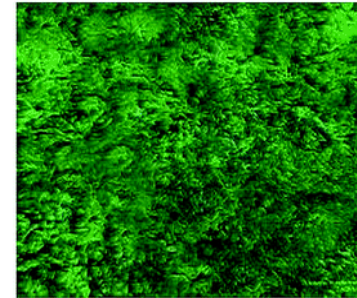


Wood



Straw

(3<sup>rd</sup>)  
Algal biomass



Microalgae

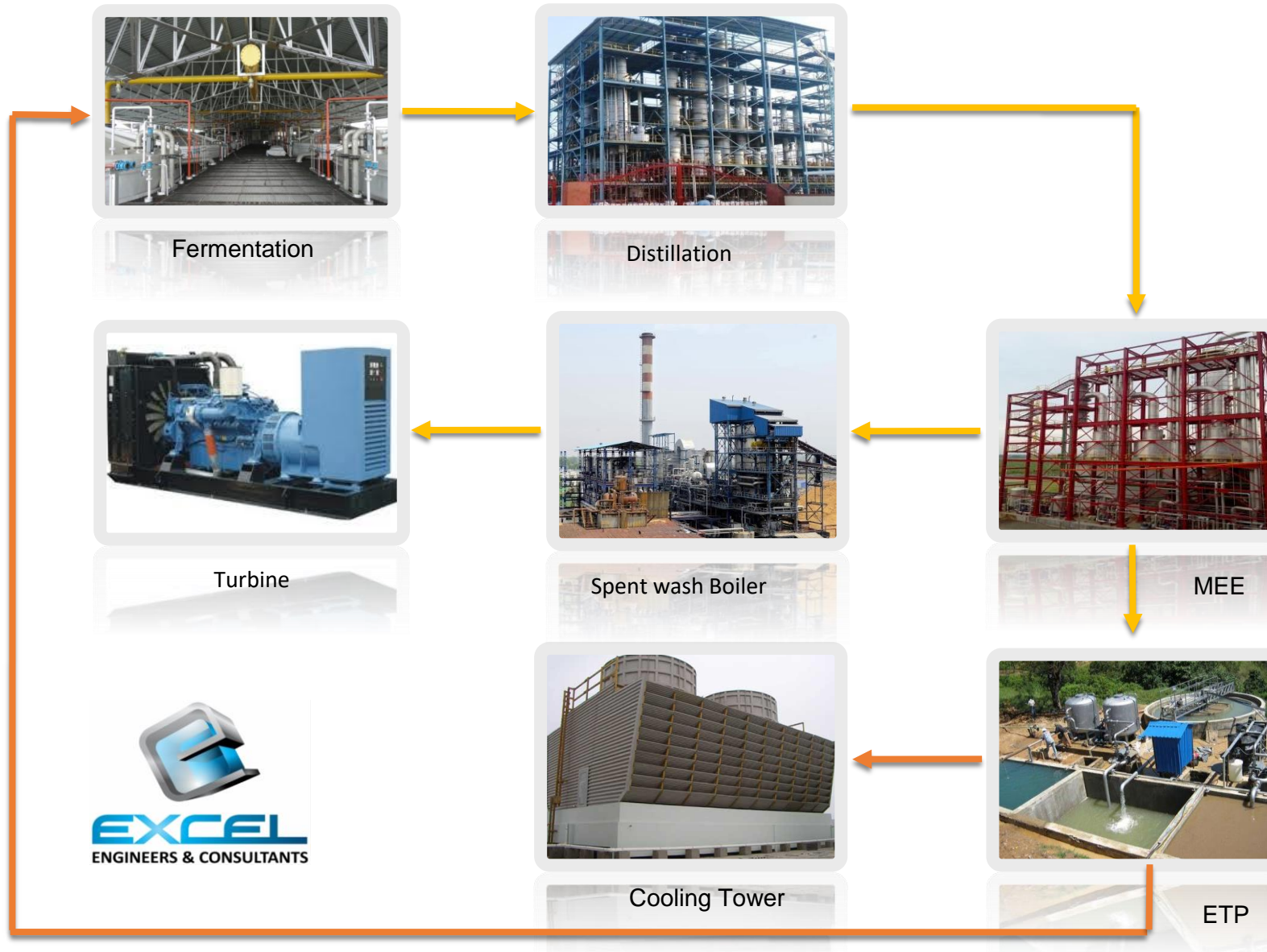






## Ethanol Production from molasses (Bio methanation Route)



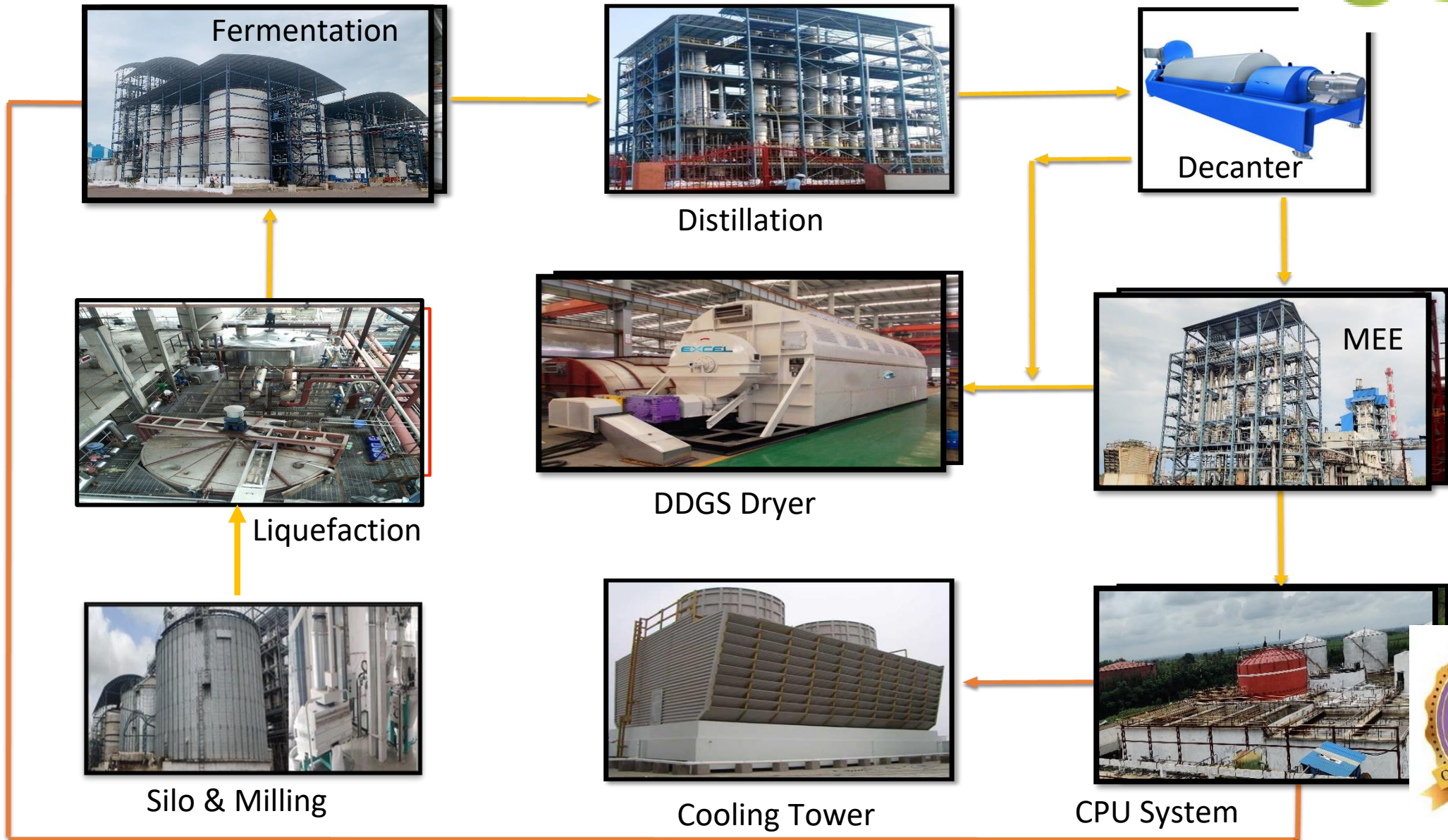


# Ethanol Production Molasses (Slop Incineration Route)

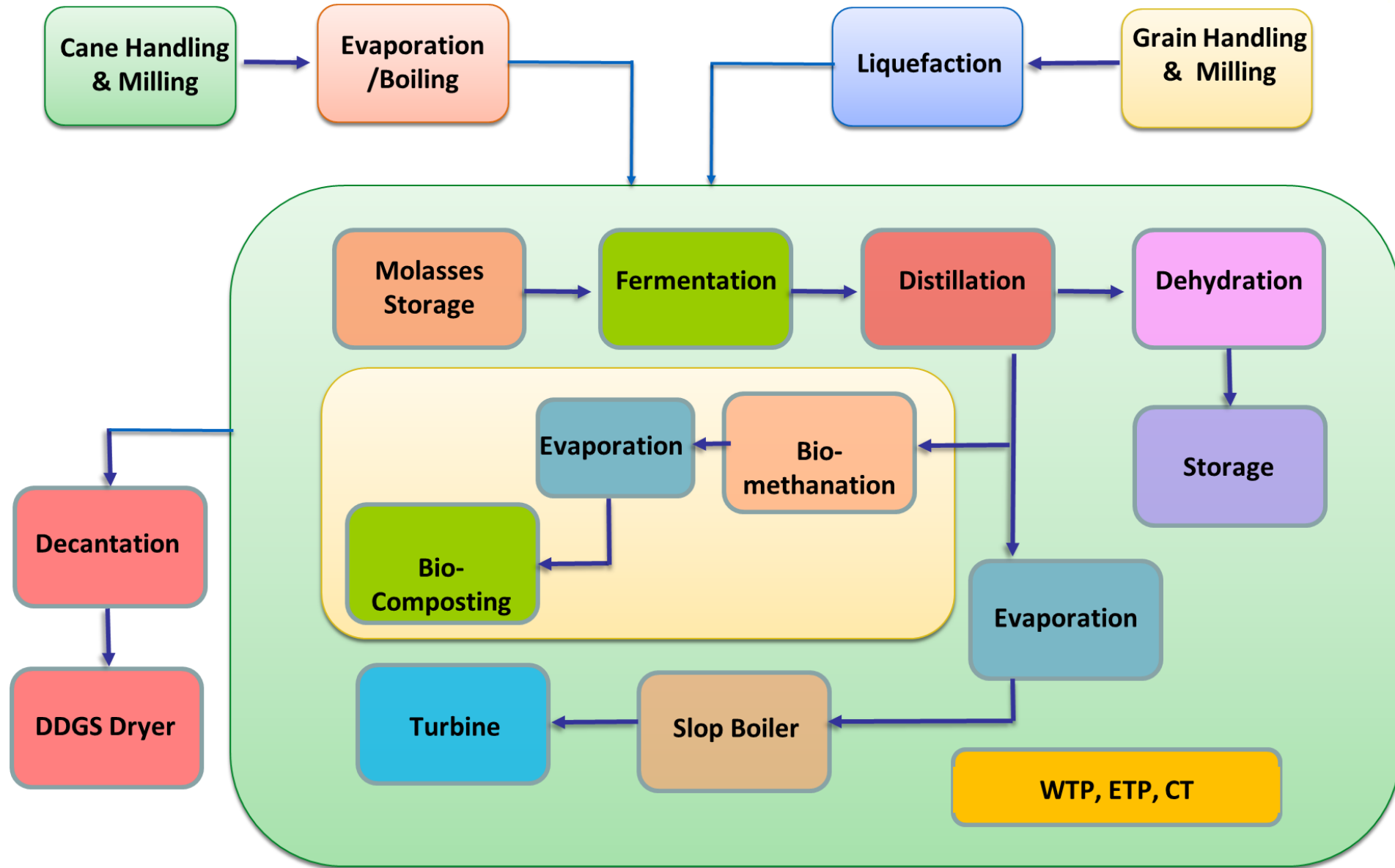




# Ethanol Production Grain (DDGS Route)



# Multi - Feed Ethanol Distillery





# *Glimpse of Projects*

**UGAR 800 KL ASIA'S LARGEST PLANT**





# *Glimpse of Projects*

UGAR 800 KL ASIA'S LARGEST PLANT





# Glimpse of Projects

## WAVE EPC PROJECT 180 KL





# *Glimpse of Projects*

**DSCL molasses Plants**





# *Glimpse of Projects*



**DSCL molasses Plants**





# Cane Juice to Ethanol @SanCarlos, PHP





# Glimpse of Projects



Hermes Grain Distillery Plants





# *Glimpse of Projects*

## **Hermes molasses Plant**





# Glimpse of Projects



## Satish Sugars syrup/Grain Distillery



# *Glimpse of Projects*



**Globus Grain Distillery**



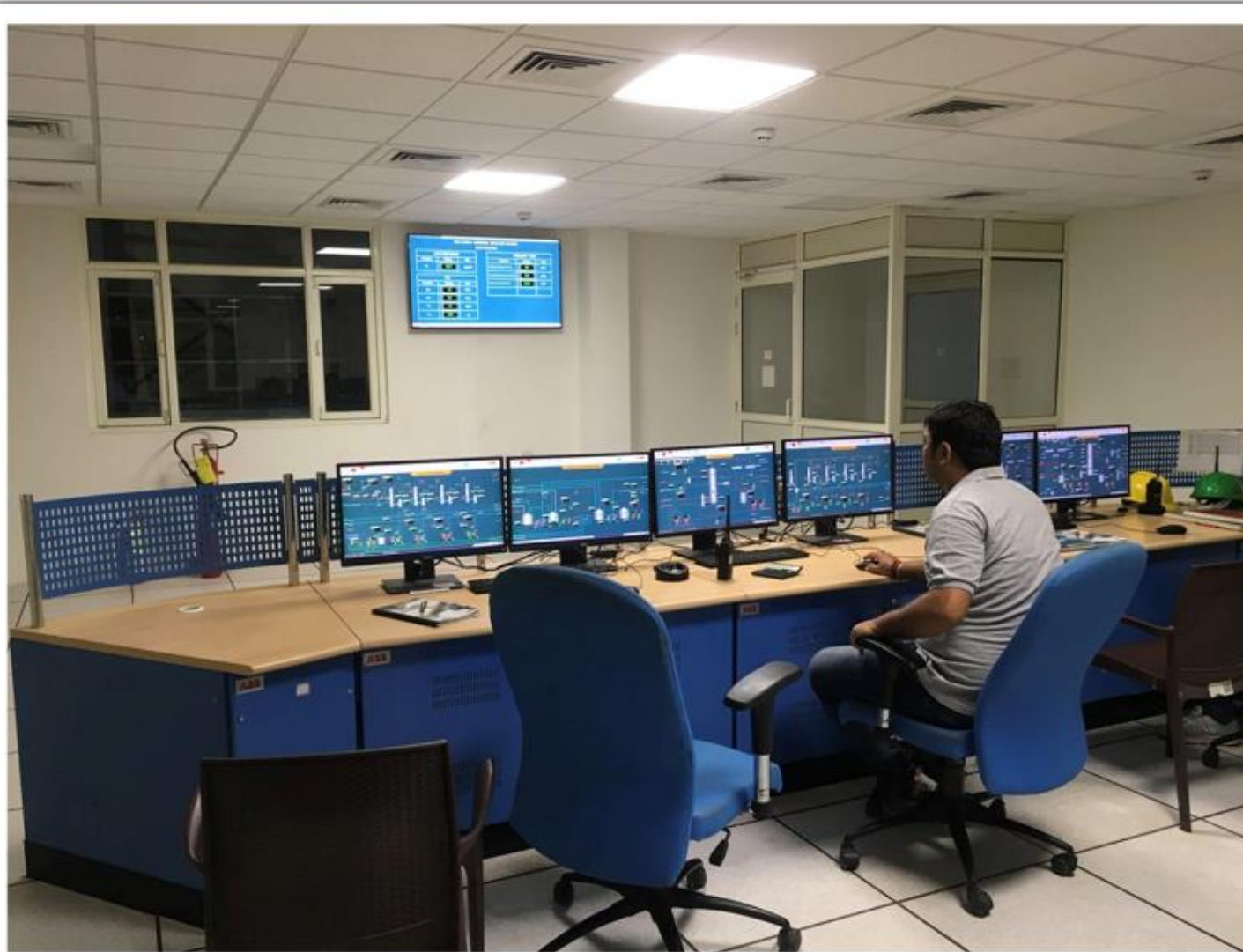


# Glimpse of Projects

## Parle Molasses Ethanol



# High End Automation





# *Glimpse of DDGS DRYERS*





# Glimpse of Projects





# Repeat Orders



1. Globus Spirits Ltd
2. Nirani Sugars Group
3. DSCL Sugars Ltd
4. Dalmia Sugars Ltd
5. Dhampur Sugars Ltd
6. Uttam Sugars Ltd
7. EID Parry Ltd
8. Hermes Distillery Ltd
9. Baramati Agro Ltd
10. Balaji Sugars Ltd



1. DIAGEO India
2. CDBL Group
3. NSL Group Hyderabad
4. Godavari Bio Ltd
5. Ugar Sugars Ltd
6. Twenty One Sugars
7. UP Co-operatives
8. Shamanur Sugar Ltd
9. Tikaula Sugars Ltd
10. Mylar Sugars Ltd



# Repeat Orders



1. Gulshan Ploy
2. Mylar Sugars Ltd
3. KM Sugars Ltd
4. Dhampur Asmoli
5. SVP Industries
6. Karthik Gluco



1. Parle Sugar
2. LH Sugars Ltd
3. Satish Sugars
4. Rana Sugars Ltd
5. Natural Sugars





# Exports Orders & Prestigious Clientele



1. Jubilant Ltd
2. India Glycol
3. PSC Starch Exports
4. PT Molindo Exports
5. Savsons Distil Ltd
6. San Carlos Exports
7. Tilak Nagar Industries
8. Mash Spirits Pvt Ltd
9. Crystal Balaji
10. Rajaram Bapu
11. Basaveshwara Ltd
12. Sterling Biofuels
13. Wave Industries



1. Bajaj Hindustan
2. Muzaffarpur Bio
3. Dwarikesh Sugars
4. Bharat Oorja
5. Aaditri Bioe
6. Balarampur Chini Mills
7. KG Spirits
8. Coastal Bio Orissa
9. Haritha and IFB
10. Venky Biofuels
11. Bokaro Ltd
12. Magadh Birla
13. Anjali Tai



# Recognitions



- Awarded for “Excellence in Innovation in Technology Industries” by MSME Chamber of Commerce & Industry of India.
- Dr. P. J. Manohar Rao Gold Medal for “Excellence in Co-Products” at STAI’s 77<sup>th</sup> Annual convection & Sugar Expo.







## CONTACT US



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Mind Fitness  
Balance Wellness Virtual  
Focus Health Stay Connected  
Prioritize  
Body

