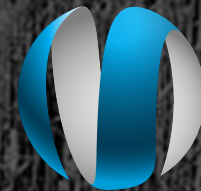


# Breaking the Carbon Chain: BECCS Technology

Dora C. Branyan

Director, Sustainability & External Relations



MARQUIS  
ENERGY GLOBAL

*“Creating a Sustainable World for Future Generations”*

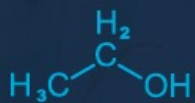


# Building a circular economy



Source: RFA, Dry Mill Ethanol Process

## ETHANOL MARKET TODAY



ETHANOL



HIGH PROTEIN  
FEED



CO<sub>2</sub>

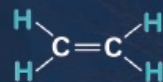


DISTILLERS CORN  
OIL

## ETHANOL MARKET TOMORROW



SAF



ETHYLENE



RENEWABLE DIESEL



PRODUCTS FROM CO<sub>2</sub>



CHEMICALS

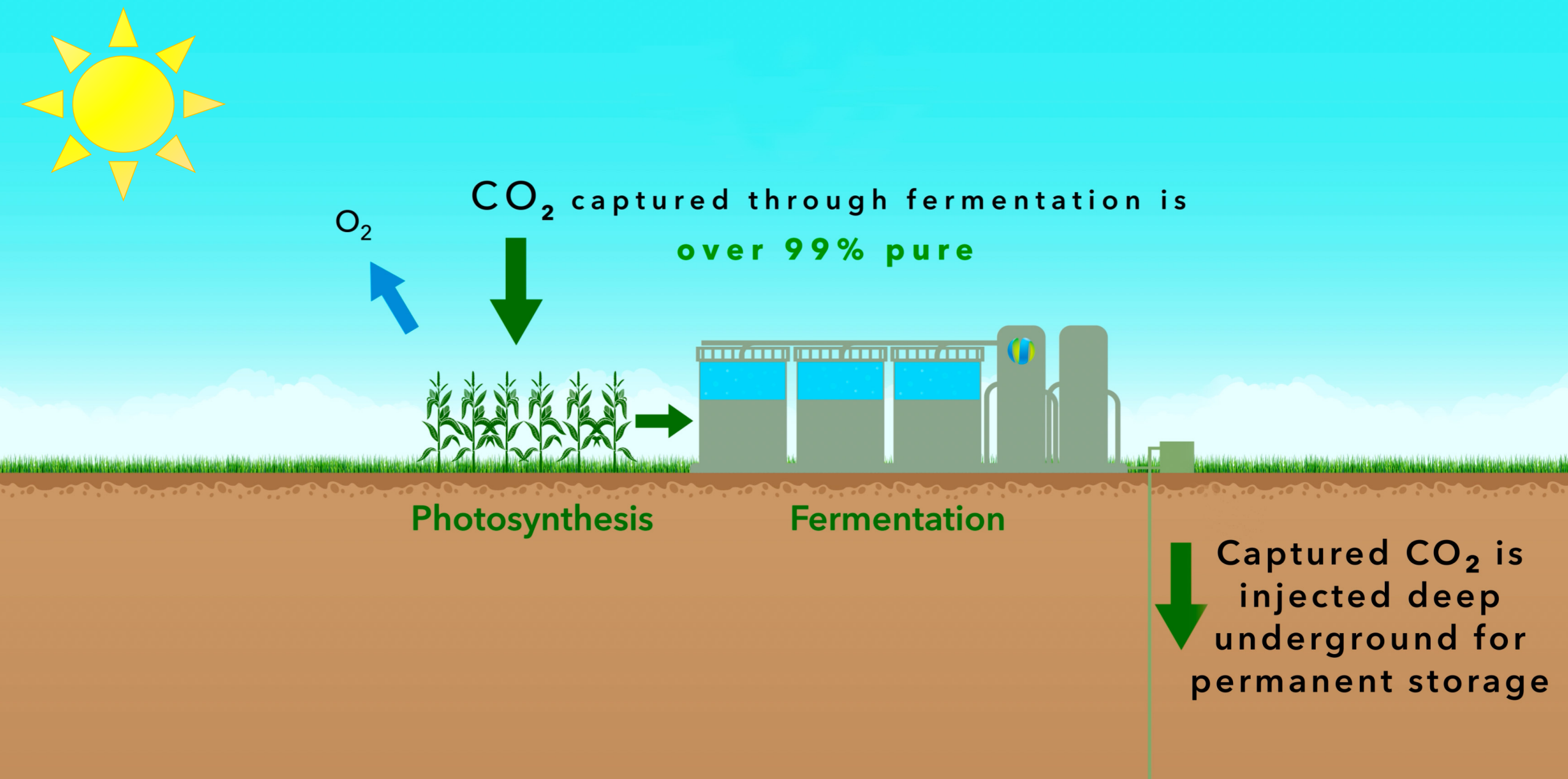


BIO PLASTICS



Biogenic CO<sub>2</sub>

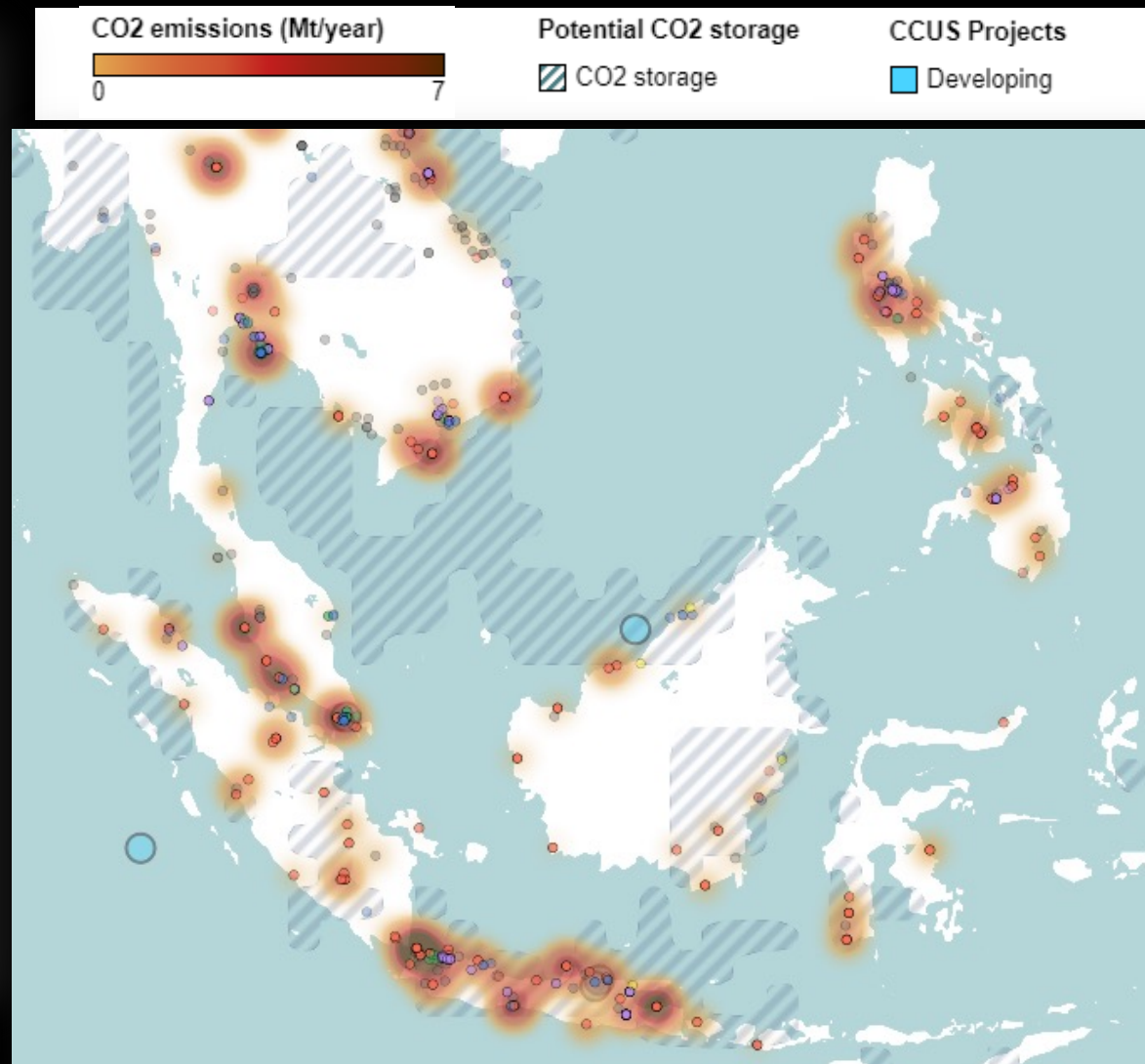
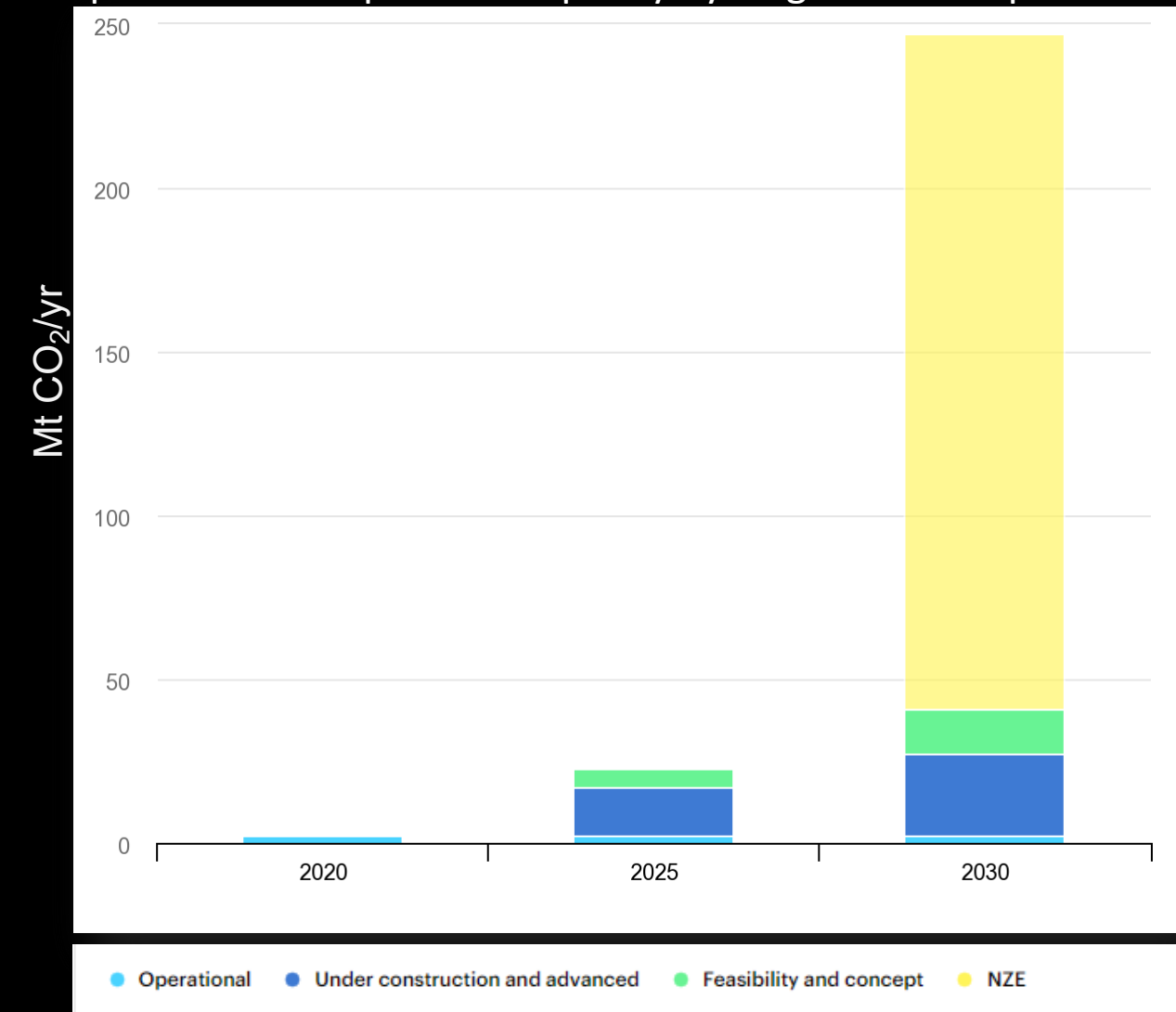




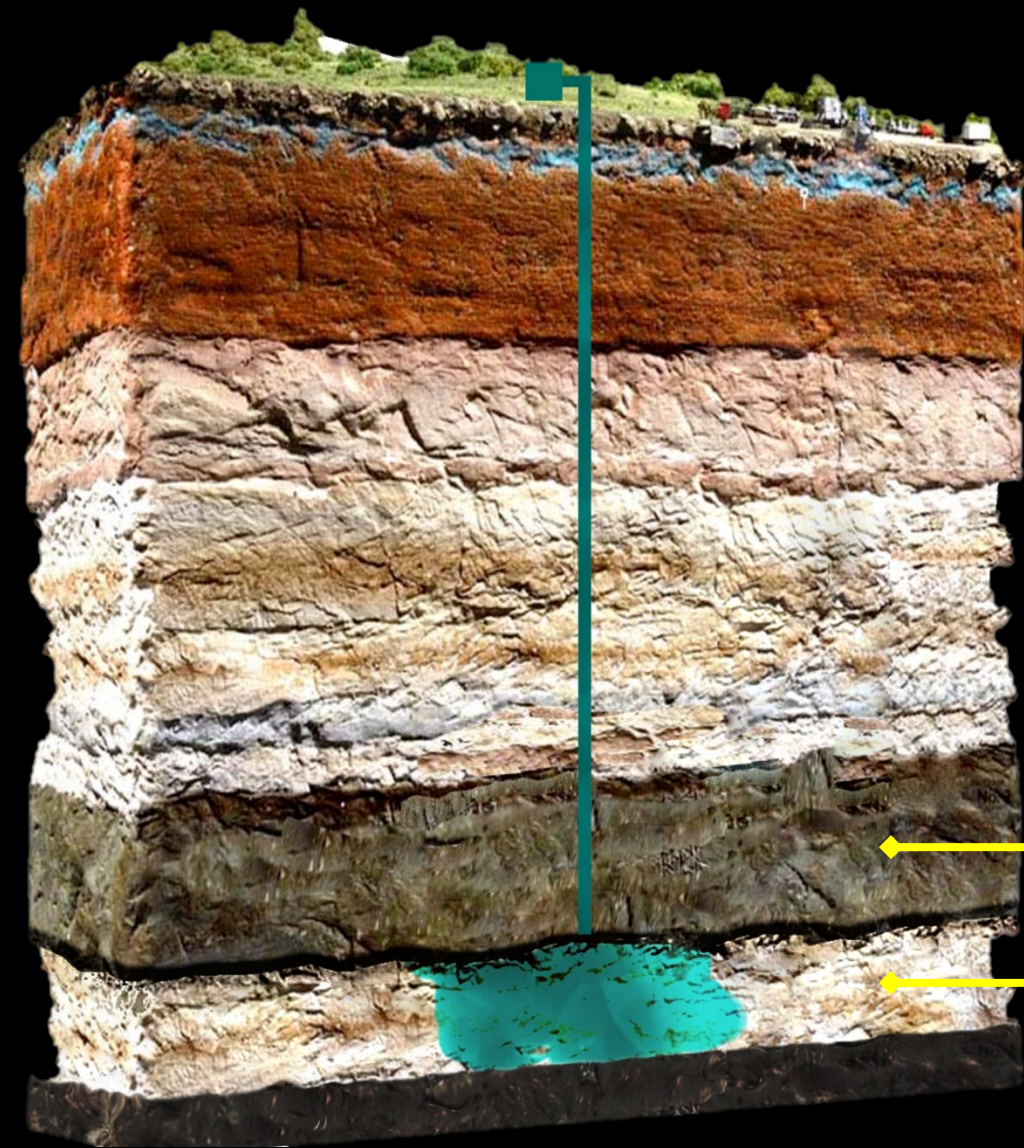


## BioEnergy Carbon Capture and Storage (BECCS)

operational and planned capacity by stage of development







EAU CLAIRE  
Cap Rock Sample



MT SIMON  
Sandstone Sample





# Path to decarbonization







## OUR CARBON CAPTURE IMPACT.

**ONE DAY:** 3,200 MT (METRIC TONS OF BIOGENIC CO<sub>2</sub>)

**ONE YEAR:** OVER 1,200,000 MT (METRIC TONS OF BIOGENIC CO<sub>2</sub>)

**LIFESPAN OF PROJECT:**  
14,400,000 MT (METRIC TONS OF BIOGENIC CO<sub>2</sub>)

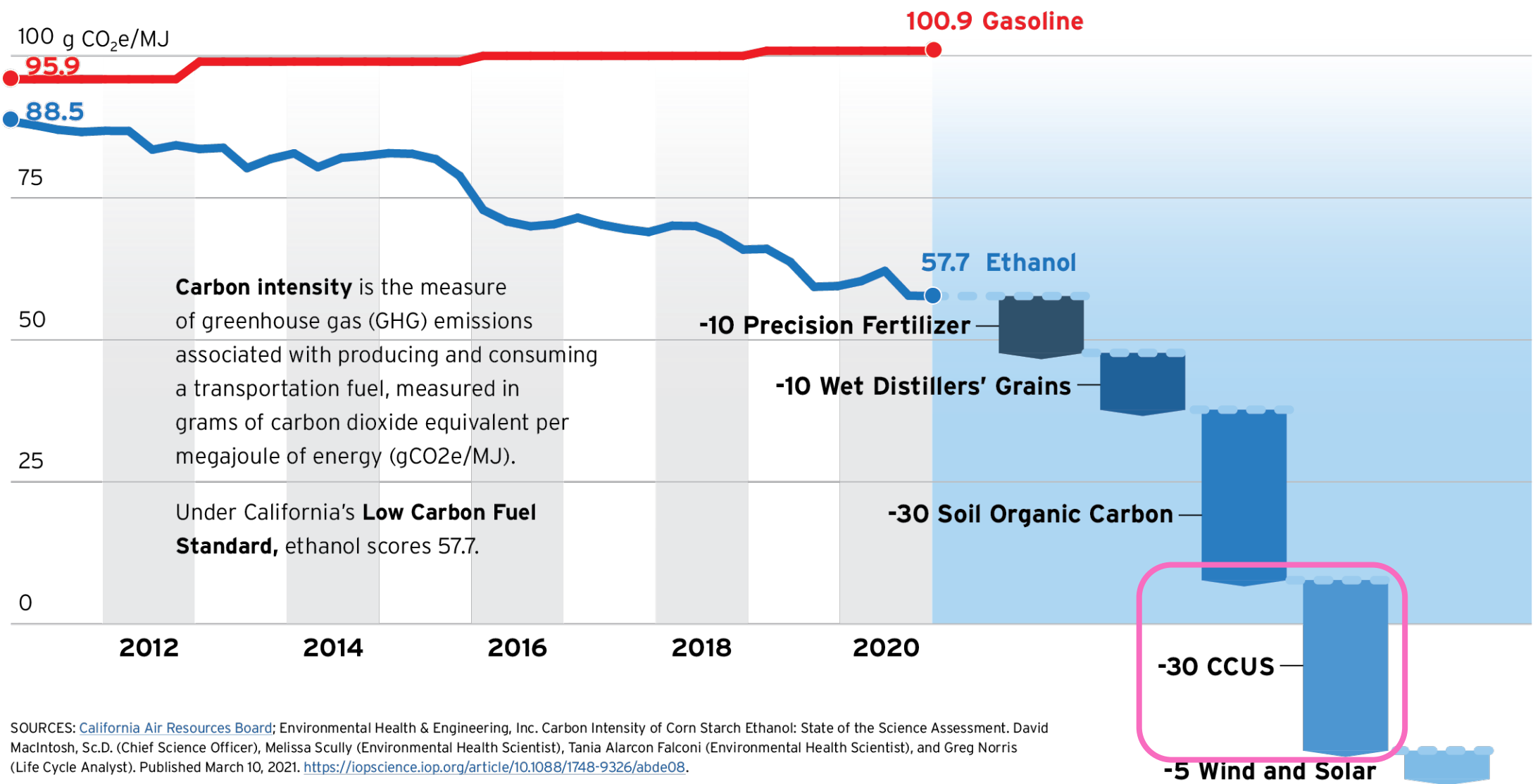
THIS IS EQUIVALENT TO THE (ANNUAL) CO<sub>2</sub> EMISSIONS OF ROUGHLY...

- 200,000 CARS PER YEAR
- 2,500,000,000 MILES DRIVEN, OR
- 1,000,000,000 LBS. OF COAL.

ACCELERATING THE DECARBONIZATION OF TRANSPORTATION AND ENERGY  
THROUGH GEOLOGICAL STORAGE.



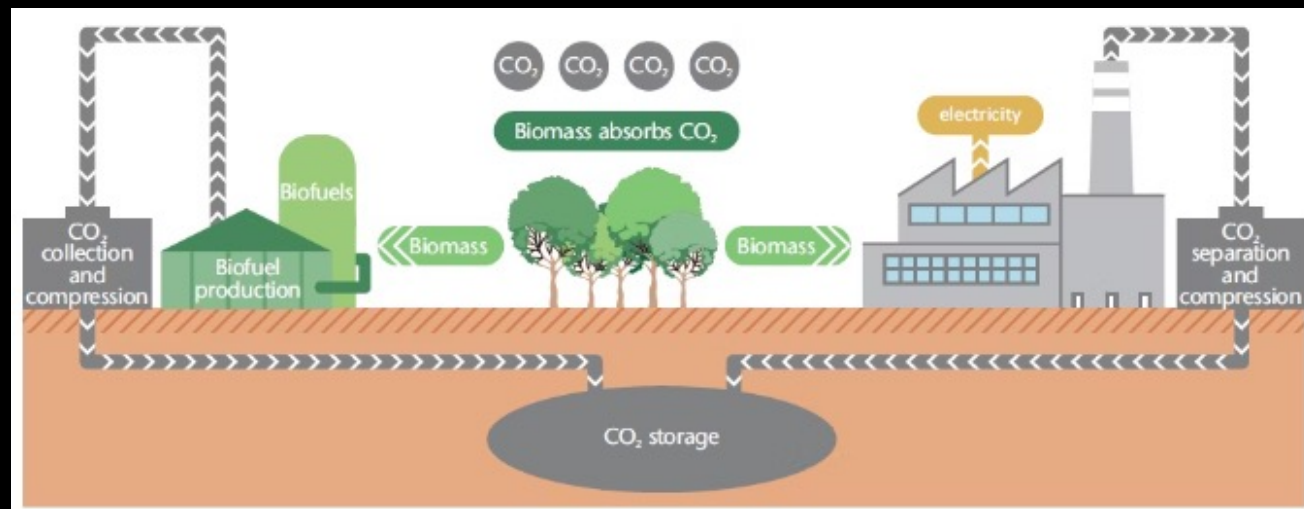
# What this does on the bio-ethanol industry







- ✓ Bio-energy production facilities
- ✓ Sufficient geology
- ✓ CO<sub>2</sub> transport infrastructure?



## CCUS Projects & Investments (per IEA website)

<b>Australia</b>	Eni, Santos	MOU to explore re-purposing Bayu-Undan offshore gas facilities in Timor-Leste and CCUS opportunities in Darwin
<b>Singapore</b>	ExxonMobil	Plans for a CCS hub concept
<b>Malaysia</b>	Petronas	CCUS technology at the Kasawari gas facility with first injection into a depleted gas field planned 2025
<b>Australia</b>	Australian & Japanese energy & shipping companies	MOU to consider the deepC Store Project, offshore CCUS hub in northern Australia
<b>Indonesia</b>	J-POWER, Japan NUS Co, PT Pertamina	CO <sub>2</sub> storage at Gundih gas field in Central Java
<b>Indonesia</b>	Repsol SA	Study for a large-scale CCUS project in Sakakemang Block natural gas development in South Sumatra



**Clean Carbon Removal Technology**

**Carbon NEGATIVE potential bio-energy**

**Location critical**

**Immediate impact for Environment**

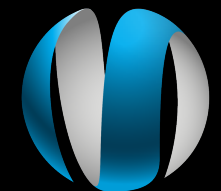


---

# Thank you!

✉ [dorabranyan@marquisinc.com](mailto:dorabranyan@marquisinc.com)

💻 [www.marquisinc.com](http://www.marquisinc.com)



MARQUIS  
ENERGY GLOBAL