



# Advancing the Future of Energy

RELIABLE | AFFORDABLE | SUSTAINABLE ENERGY







## REFINING

WORLD'S LARGEST INDEPENDENT REFINER



## RENEWABLE DIESEL

WORLD'S 2<sup>ND</sup> LARGEST RENEWABLE DIESEL PRODUCER



## ETHANOL

WORLD'S 2<sup>ND</sup> LARGEST CORN ETHANOL PRODUCER

### GROWTH PROJECTS FOCUSED ON COST CONTROL, OPTIMIZATION AND MARGIN EXPANSION



<b>15</b> refineries	lowest cost producer	<b>3.2</b> million barrels per day of high-complexity throughput capacity	advantaged refining and logistics assets well positioned for feedstock and product optimization	low carbon co-processing projects are in development
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EXECUTING A VIABLE PATH TO REDUCE AND DISPLACE GREENHOUSE GAS (GHG) EMISSIONS

### HIGH RETURN PROJECTS WITH PRODUCTS PLACED INTO HIGH GROWTH, LOW-CARBON MARKETS



<b>1.2</b> billion gallons per year in late 2022	Recent expansion to	low-carbon intensity renewable diesel produced from recycled animal fats, used cooking oil and inedible corn oil	up to <b>80%</b> reduction in GHG emissions	<b>100%</b> compatible with existing engines and infrastructure
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CONTINUE TO DEVELOP ADDITIONAL LOW-CARBON GROWTH OPPORTUNITIES

### DEVELOPING ECONOMIC PROJECTS TO FURTHER REDUCE CARBON INTENSITY



<b>12</b> US based ethanol plants	<b>1.6</b> billion gallons per year production capacity	high-octane renewable fuel with lower CO <sub>2</sub> emissions	<b>at least 30%</b> reduction in GHG emissions	highly advanced and environmentally responsible corn farming
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REDUCING CARBON INTENSITY THROUGH ANNOUNCED CARBON SEQUESTRATION PROJECT



Best-in-class producer of fuels and products that are essential to modern life





# Advancing the Future of Energy Through Sustainability Certification – Why Get Certified

- The future of clean energy depends on support from governments, businesses and consumers
  - funding for research and technology development
  - commitment by leaders to focus efforts
  - evidence that the work is making a difference and are not just words
- The EU RED has recognized the challenges of meeting aggressive climate change goals and has mandated that member states show proof that a portion of their transportation fuels are sustainably sourced
- Certifications are a way to measure similar operations against a common standard and legitimize sustainability practices
- Certification is required in order to comply with legally mandated biofuel obligations

Business Entity	ISCC Role	EU	PLUS
Valero Marketing & Supply Co.	Trader w/storage	√	√
Valero Energy Ltd. London, UK	Trader w/storage	√	
Valero Grain Marketing	Trader	√	√
Valero Refining Corpus Christi, TX	Refinery w/ Co-processing	√	
Valero Energy Ltd Pembroke, UK	Refinery w/ Co-processing	√	
Valero Renewable Fuels – Aurora, SD	Ethanol Plant	√	√
Valero Renewable Fuels – Albion, NE	Ethanol Plant		√
Valero Renewable Fuels-Albert City, IA	Ethanol Plant		√
Diamond Green Diesel St. Charles, LA	Renewable Diesel Plant	√	√
Diamond Green Diesel Port Arthur, TX	Renewable Diesel Plant	√	√



# Challenges Associated with Obtaining Certification and Remaining Certified

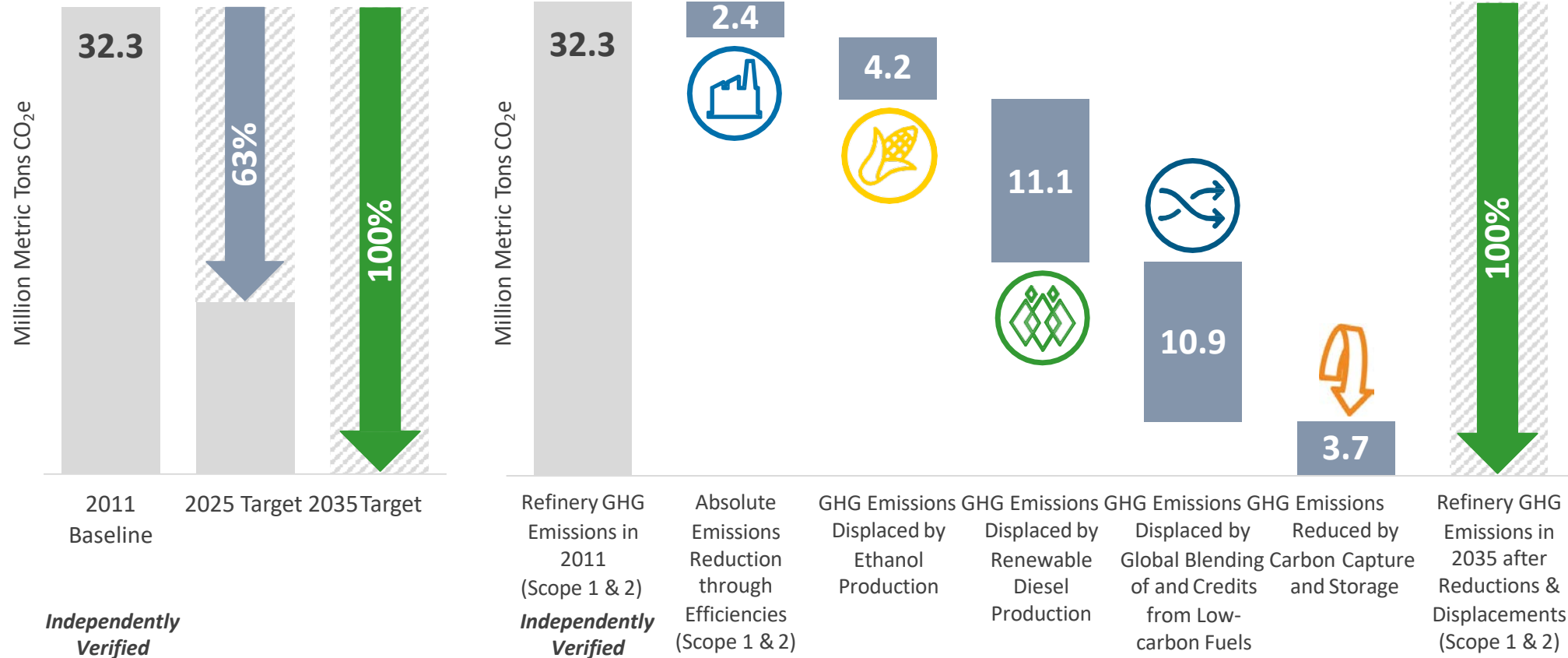
- US feedstock suppliers are hesitant to participate due to the additional data they need to provide
  - US farmers inherently employ good land management practices without having written biodiversity plans nor are they likely to share long-term business plans
  - Used cooking oil vendors are protective of origin location data and are not inclined to provide the data to renewable fuel producers
- Government regulations
  - crop-based fuel bans
  - internal combustion engine bans
- Implementation differences amongst member states and as well as other countries
  - molecule management versus historical practice of “barrel” management
  - double credits
  - inconsistent treatment of different feedstocks
  - different blending requirements
  - more programs to manage along with CA-LCFS, Canada CFR, US RFS
- Inconsistency across certifying bodies and auditors along with lack of specific business knowledge
- Manual data tracking and paper forms – labor intensive and prone to errors





# Comprehensive Roadmap to Further Reduce Emissions with Innovative Low-Carbon Projects

## GHG Emissions Reduction (Scope 1 & 2)



On track to **reduce** and **displace** Refinery GHG emissions by **63%** Scope 1&2 through investments in board-approved projects by 2025.

Targeting to **reduce** and **displace** Refinery GHG emissions by **100%** Scope 1&2 through board-approved projects and carbon sequestration projects under development by 2035.

# A Commitment to Environmental Stewardship, Beyond Regulations

## E ENVIRONMENTAL STEWARDSHIP

### Reducing, Reusing, Recycling, and Repurposing

### Carbon Capture

Refining

Flare-gas recovery systems result in more than **96% flaring-free** operations



Recycled more than **17 times the amount of fresh water** consumed in refining operations in 2021



Real-time air quality screenings are conducted at **refineries** and **fence-line communities**



Cogeneration units and expanders can **offset enough electricity** to power a city the size of **San Francisco**



Our Port Arthur refinery became **the first industrial site** in the U.S. to **host a large scale carbon capture project**, with **more than 1 million metric tons captured each year**

Low-carbon Fuels

Renewable diesel **reduces life cycle GHG emissions up to 80%**<sup>(1)(2)</sup>



High-octane low-carbon fuel, ethanol reduces **life cycle GHG emissions by at least 30%**<sup>(2)</sup>



**Cellulosic ethanol:** Using **enzymes to convert fiber** into fuel further reduces carbon intensity to **high 20s**

Developing a large-scale **carbon capture project** connecting to eight of our **ethanol plants**, providing **an economic path to reduce carbon intensity** of our ethanol **by more than 40%**



Increasing **Renewable Diesel** production



Increasing **Renewable Naphtha** production



Advancing **Renewable Propane**



Developing **Sustainable Aviation Fuel (SAF)**



Developing **Renewable Hydrogen**



Increasing **Fiber Cellulosic Ethanol** production



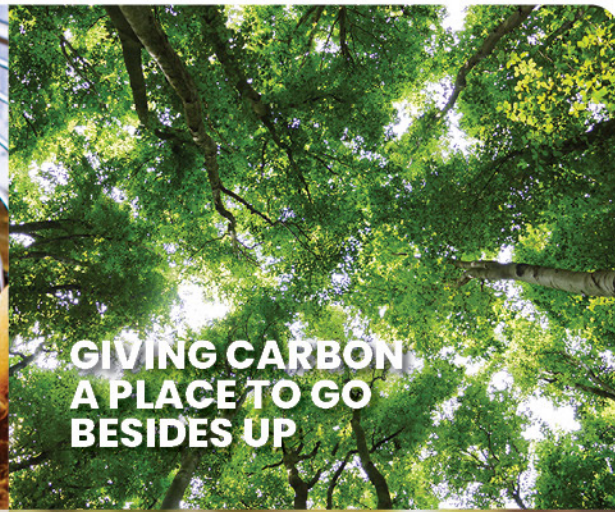
Evaluating additional **Carbon Sequestration** opportunities

<sup>(1)</sup> 100% used cooking oil feedstock results in a carbon intensity score of 20 under California's LCFS program.

<sup>(2)</sup> Versus the comparable petroleum based fuel.



**RECYCLING YESTERDAY'S  
COOKING OIL INTO  
RENEWABLE DIESEL**



**GIVING CARBON  
A PLACE TO GO  
BESIDES UP**



**MAKING LOW-CARBON  
FUELS FOR GENERATIONS  
TO COME**



**GIVING KIDS A  
CHANCE TO TAKE THE  
NEXT STEP**

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