

### Basics of Renewable Diesel March 2020



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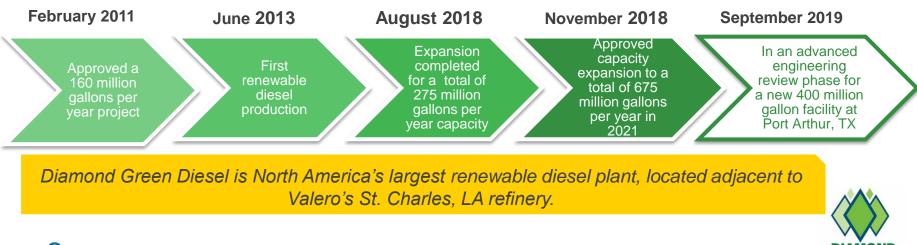
# **Diamond Green Diesel Joint Venture**



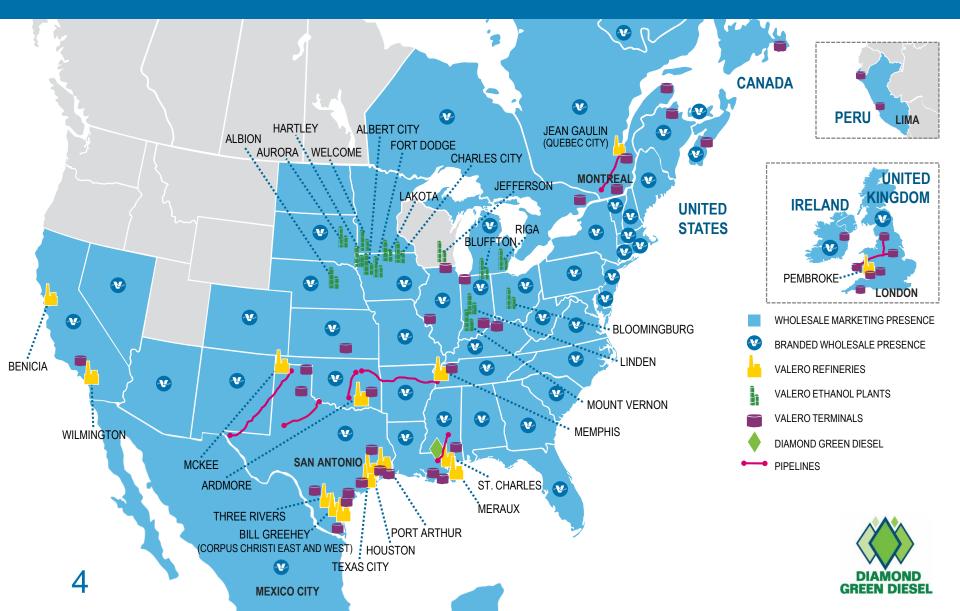
- Darling (NYSE: DAR) collects and transforms all aspects of animal by-product streams into useable and specialty ingredients
- Darling processes ~10% of the world's animal by-products
- Operations in over 200 locations on five continents



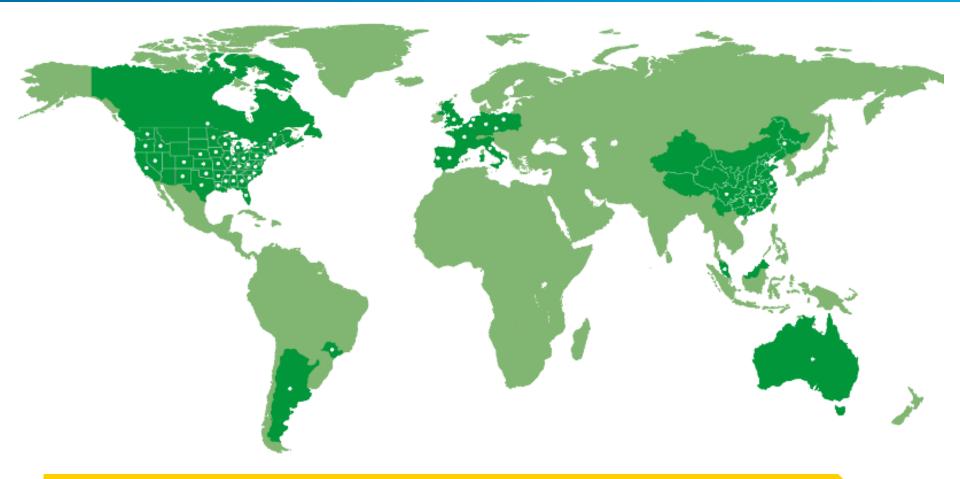
- Valero (NYSE: VLO) is an international manufacturer and marketer of transportation fuels and petrochemical products
- 15 refineries with a combined throughput capacity of ~3.2 million barrels per day
- 14 ethanol plants with a combined production capacity of 1.73 billion gallons per year



# Valero is the Largest Renewables Fuels Producer in North America



### Darling Ingredients is the World's Largest Independent Processor of Animal By-Products



135+ years in the business 200+ locations across 15 countries in 5 continents

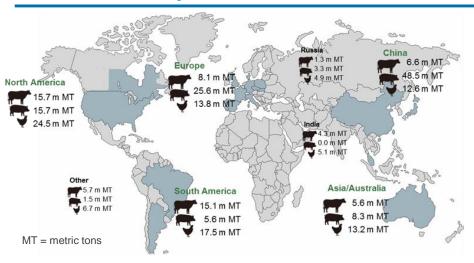


### Securing the Feedstock at Darling Processing Plants

#### **Used Cooking Oil**

#### **Recycled Animal Fats**





Countries where Darling has processing facilities

• 2.3 billion pounds of used cooking oil (UCO) is generated in the U.S.

### ~93% of Darling's UCO goes to biofuel ~49% of

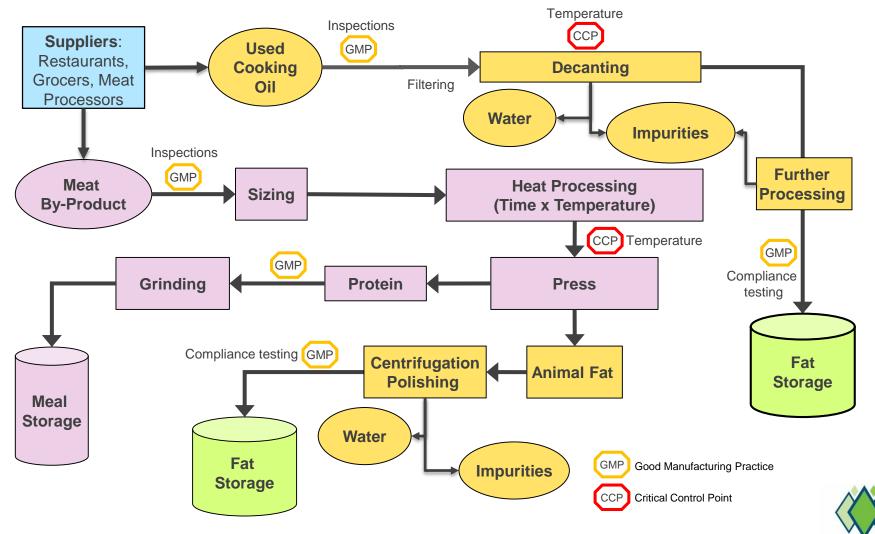
Sources: LMC International 2019, National Renderers Association and USDA

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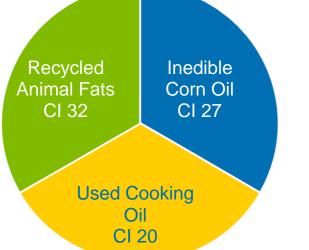
# Processing of Animal Fats and Used Cooking Oil



GREEN DIESEL

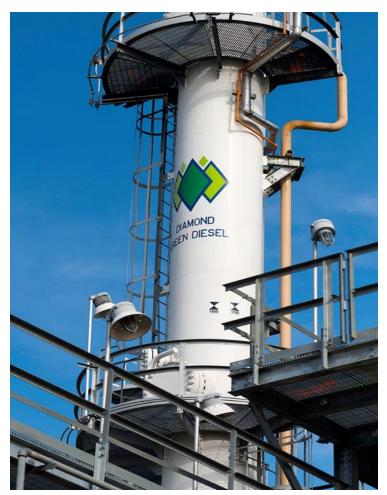
### **Diamond Green Diesel Feedstocks**

# Feedstock Composition and Carbon Intensity (CI)



#### Darling Ingredients provides feedstocks for DGD

- Darling is a global leader in by-product processing
- Darling brings expertise of the overall market for the feedstocks and the technical pretreatment of the feedstocks





# Renewable Diesel has a Low Carbon Intensity (CI)

#### **Carbon Intensity of Common Fuels**

Product	Carbon Intensity
Gasoline	101
Diesel	100
California grid electricity	100
Vegetable oils for biomass-based diesel	55
Waste oils for biomass-based diesel	10-30

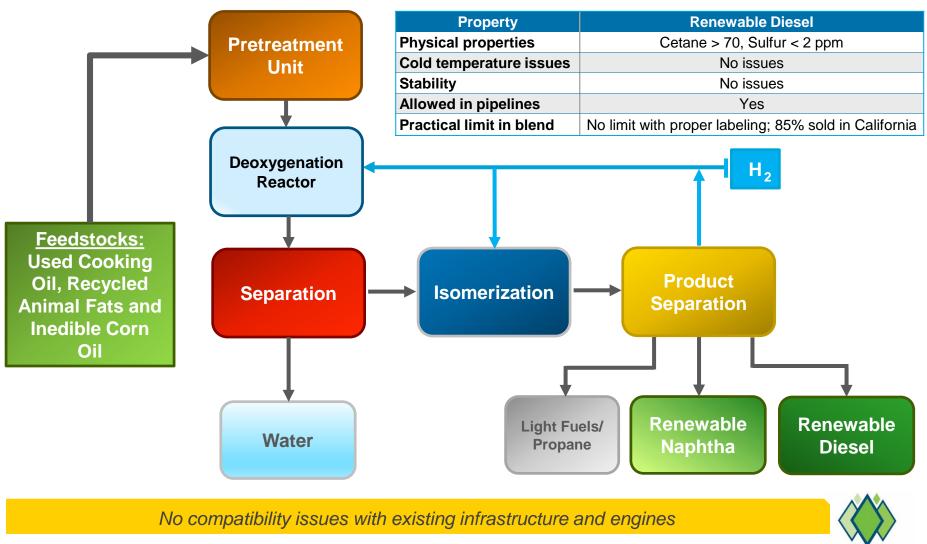


- California and Canadian programs are based on CI, which is measured in CO<sub>2</sub> equivalent emissions per unit of energy over the life-cycle of the fuel
- EU's program has life-cycle analysis, but sets up single credits, double credits, etc. to value feedstocks versus a formulaic value that is dependent on CI
- At \$200 per ton carbon price, the carbon value of a 25 CI renewable diesel fuel in California is \$1.76 per gallon

Energy sources with a low CI have significant value in programs like California's Low Carbon Fuel Standard (LCFS)



### **Renewable Diesel Process and Properties**



# **Diamond Green Diesel Plant Layout**





# Investing to Increase Premium Renewable Fuels Production



#### **Diamond Green Diesel Expansion**

- \$1.1 billion project cost expected to be funded from cash generated by DGD's operations
- Independent parallel renewable diesel plant and renewable naphtha finishing facility adjacent to existing plant expected to be completed in 2021
  - Increases annual renewable diesel production capacity by 400 million gallons per year and enables recovery of renewable naphtha
  - Combined total production capacity will be 675 million gallons per year after successful completion
- Margins are expected to be supported by increasing renewable fuel mandates and carbon pricing
- Estimated annual EBITDA contribution is approximately \$500 million at \$1.26 per gallon historical average EBITDA<sup>(1)</sup>
- DGD is also in an advanced engineering review phase for a potential new 400 million gallons per year renewable diesel plant in Port Arthur, Texas



(1) Historical average EBITDA includes the Blenders Tax Credit. Projected pro forma EBITDA estimate of \$1.26 per gallon excludes the Blenders Tax Credit.

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# **Demand Driven by Renewable Fuel Mandates**

#### **State**

#### Low Carbon Fuel Standard (LCFS)

- Low Carbon Fuel Standard mandate was enacted in 2007 by the California Air Resources Board (CARB)
- CARB has adopted regulations to extend LCFS from 2020 to 2030 with a Carbon Intensity (CI) reduction goal of 7.5% in 2020, increasing to 20% in 2030 versus 2010 benchmark

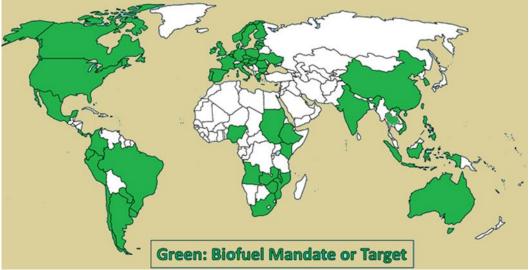
#### National

#### **Renewable Fuel Standard (RFS)**

- RFS is a federal mandate aimed towards reducing the nation's use of traditional petroleum-based fuels by increasing the use of renewable fuels
- The 2020 renewable fuel volume requirement is 20.1 billion gallons

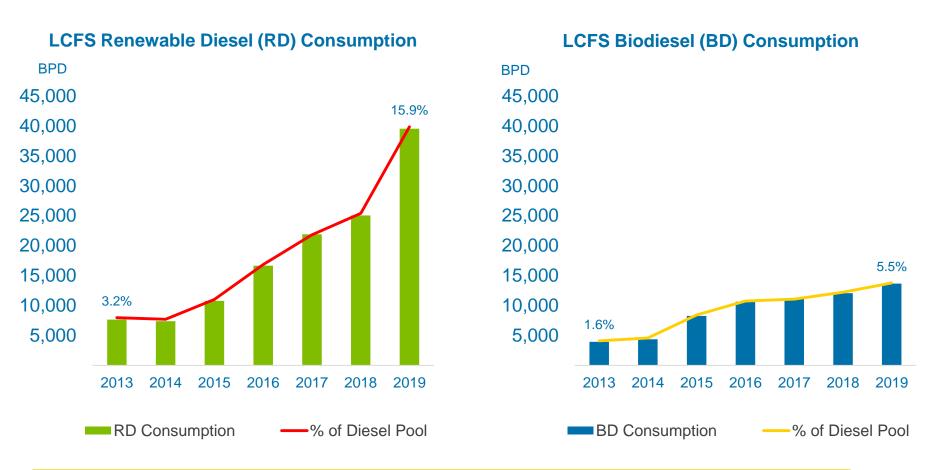
#### Global

- 66 countries have adopted mandates or target goals to reduce emissions
- British Columbia, the European Union and the United Kingdom have adopted similar programs
- Sweden implemented a 19.3% GHG reduction mandate for diesel fuel in 2018, with the target increasing to 21% by 2020





## Renewable Diesel Blending is Outpacing Biodiesel Blending

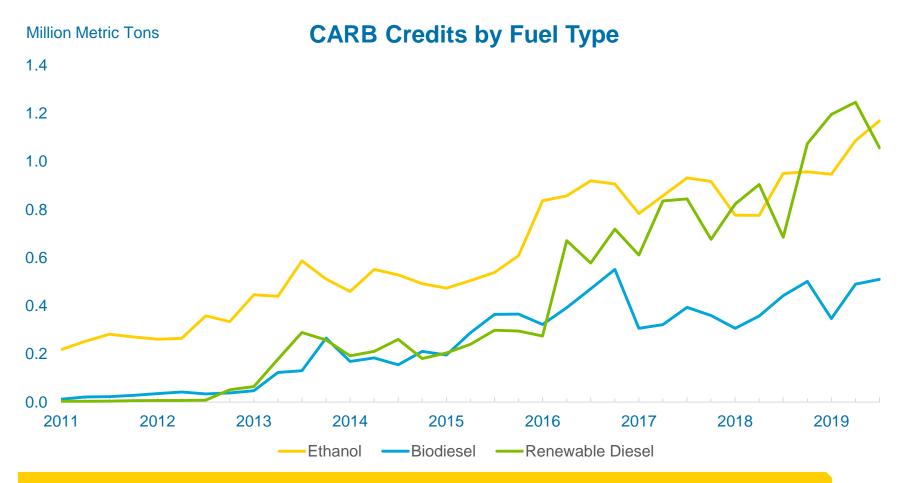


Renewable diesel blending is growing rapidly in the United States, Canada and Europe



Source: California Air Resources Board.

# Renewable Diesel is one of the Largest Carbon Credit Generators in California

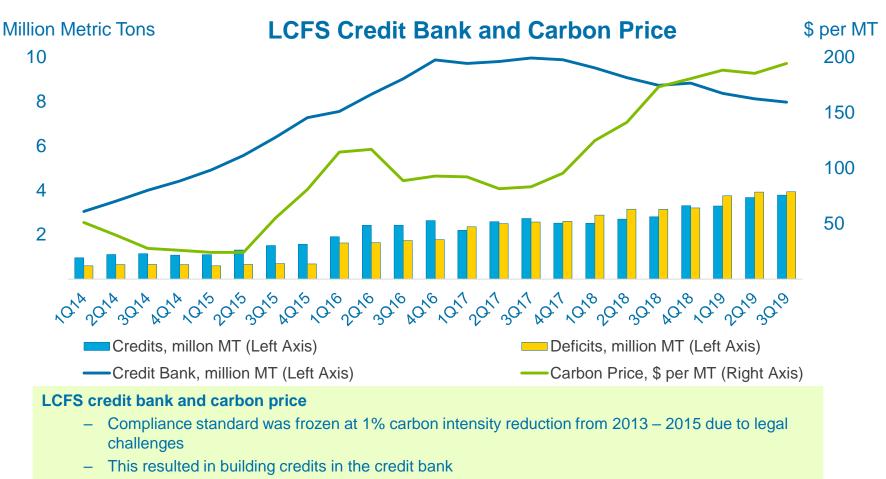


Renewable diesel is projected to be a large carbon credit generator for the foreseeable future



Source: California Air Resources Board as of September 30, 2019.

# Renewable Fuel Mandate is Driving LCFS Pricing



- Reduction goal for 2019 was 6.25% with a 10% goal for 2022
- The credit bank is now being drawn down, driving an increase in the carbon price



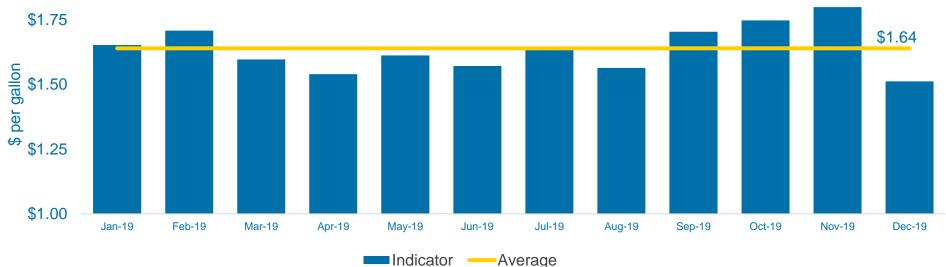
Source: California Air Resources Board as of January 31, 2020.

# **Renewable Diesel Margin Indicator**

DGD Indicator (\$ per gallon)

#### NYMEX ULSD + (1.7 \* Biodiesel RIN) + (0.007 \* LCFS Credit) – (8.5 \* CBOT Soybean Oil)

- New York Ultra Low Sulfur Diesel (ULSD) price, \$ per gallon
- Renewable Identification Number (RIN), \$ per RIN
- Low Carbon Fuel Standard (LCFS) credit, \$ per metric ton
- Chicago soybean oil price, \$ per pound



The DGD margin indicator excludes the \$1 per gallon Blender's Tax Credit (BTC).



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