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

**February 2011**
- Approved a 160 million gallons per year project

**June 2013**
- First renewable diesel production

**August 2018**
- Expansion completed for a total of 275 million gallons per year capacity

**November 2018**
- Approved capacity expansion to a total of 675 million gallons per year in 2021

**September 2019**
- In an advanced engineering review phase for a new 400 million gallon facility at Port Arthur, TX

*Diamond Green Diesel is North America’s largest renewable diesel plant, located adjacent to Valero’s St. Charles, LA refinery.*
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**

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

**Recycled Animal Fats**

- Darling processes ~10% of the world’s animal by-products

~93% of Darling’s UCO goes to biofuel

~49% of Darling’s animal fats go to biofuel

Sources: LMC International 2019, National Renderers Association and USDA
Processing of Animal Fats and Used Cooking Oil

Suppliers: Restaurants, Grocers, Meat Processors

Used Cooking Oil

Sizing

Grinding

Protein

Press

Heat Processing (Time x Temperature)

Decanting

Water

Impurities

Further Processing

Fat Storage

Meal Storage

Centrifugation Polishing

Animal Fat

Fat Storage

Water

Impurities

Inspections

Temperature

Compliance testing

GMP

Good Manufacturing Practice

CCP

Critical Control Point
Diamond Green Diesel Feedstocks

Feedstock Composition and Carbon Intensity (CI)

- Recycled Animal Fats CI 32
- Inedible Corn Oil CI 27
- Used Cooking Oil CI 20

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

<table>
<thead>
<tr>
<th>Product</th>
<th>Carbon Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>101</td>
</tr>
<tr>
<td>Diesel</td>
<td>100</td>
</tr>
<tr>
<td>California grid electricity</td>
<td>100</td>
</tr>
<tr>
<td>Vegetable oils for biomass-based diesel</td>
<td>55</td>
</tr>
<tr>
<td>Waste oils for biomass-based diesel</td>
<td>10-30</td>
</tr>
</tbody>
</table>

- California and Canadian programs are based on CI, which is measured in CO₂ 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

Feedstocks: Used Cooking Oil, Recycled Animal Fats and Inedible Corn Oil

<table>
<thead>
<tr>
<th>Property</th>
<th>Renewable Diesel</th>
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<tbody>
<tr>
<td>Physical properties</td>
<td>Cetane &gt; 70, Sulfur &lt; 2 ppm</td>
</tr>
<tr>
<td>Cold temperature issues</td>
<td>No issues</td>
</tr>
<tr>
<td>Stability</td>
<td>No issues</td>
</tr>
<tr>
<td>Allowed in pipelines</td>
<td>Yes</td>
</tr>
<tr>
<td>Practical limit in blend</td>
<td>No limit with proper labeling; 85% sold in California</td>
</tr>
</tbody>
</table>

No compatibility issues with existing infrastructure and engines
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\(^{(1)}\)
- 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.
## Demand Driven by Renewable Fuel Mandates

<table>
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<tr>
<th>State</th>
<th>Global</th>
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<tr>
<td><strong>Low Carbon Fuel Standard (LCFS)</strong></td>
<td>• 66 countries have adopted mandates or target goals to reduce emissions</td>
</tr>
<tr>
<td>• Low Carbon Fuel Standard mandate was enacted in 2007 by the California Air Resources Board (CARB)</td>
<td>• British Columbia, the European Union and the United Kingdom have adopted similar programs</td>
</tr>
<tr>
<td>• 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</td>
<td>• Sweden implemented a 19.3% GHG reduction mandate for diesel fuel in 2018, with the target increasing to 21% by 2020</td>
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<table>
<thead>
<tr>
<th>National</th>
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<tr>
<td><strong>Renewable Fuel Standard (RFS)</strong></td>
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<tr>
<td>• RFS is a federal mandate aimed towards reducing the nation’s use of traditional petroleum-based fuels by increasing the use of renewable fuels</td>
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<tr>
<td>• The 2020 renewable fuel volume requirement is 20.1 billion gallons</td>
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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

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

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

LCFS credit bank and carbon price

- Compliance standard was frozen at 1% carbon intensity reduction from 2013 – 2015 due to legal challenges
- This resulted in building credits in the credit bank
- 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

Renewable Diesel Margin Indicator

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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