



Green Plains

U.S. Biofuel Policies

February 20th, 2018

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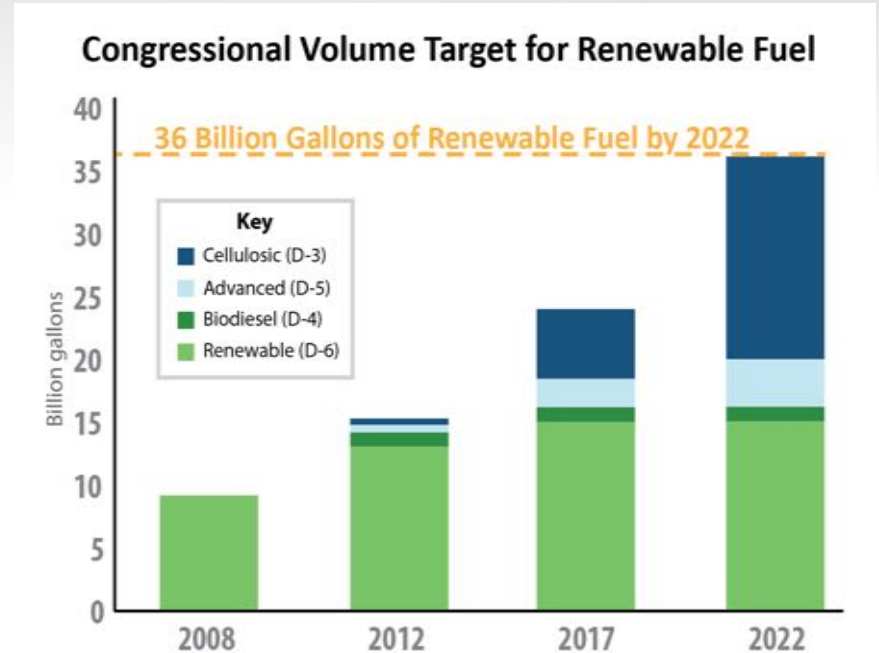


Green Plains Inc. | NASDAQ: GPRE | www.gpreinc.com

Green Plains Partners LP | NASDAQ: GPP | www.greenplainspartners.com

Renewable Fuel Standard Overview

- Renewable Fuel Standard (RFS) is a national policy requiring a certain volume of renewable fuel to replace or reduce the quantity of petroleum-based fuels
 - Created under the Energy Policy Act of 2005 (EPAAct) and amended by the Energy Independence and Security Act of 2007 (EISA)
- Four renewable fuel categories
 - Biomass-based diesel (D4 RIN)/ Cellulosic biofuel (D3 RIN)/ Advanced biofuel (D3,D4,D5 RIN)/ Total renewable fuel (D3-7 RIN)
- EISA increased size of program and included key changes, including
 - Boosting the long-term goals to 36 billion gallons of renewable fuel, extending yearly volume requirements through 2022, adding explicit definitions for renewable fuels to qualify (e.g., renewable biomass, GHG emissions), creating grandfathering allowances for volumes from certain facilities, including specific types of waiver authorities



Current RFS Obligations

- Obligated parties are refiners or importers of gasoline or diesel fuel
- Compliance achieved by blending renewable fuels into transportation fuel or by purchasing RINs
- Standards are converted into a percentage and obligated parties must demonstrate compliance based on gasoline and diesel production
- 2018 RIN equivalent gallons = 19.29 bln
- RINs can apply up but not down
 - D3 RIN can satisfy D4 obligation but not vice versa
- D3/D5/D6/D7 RINs are 1v1
 - 1 RIN = 1 gallon of fuel
- D4 RINs are not 1v1
 - 1.5 – 1.7 RINs = 1 gallon of fuel

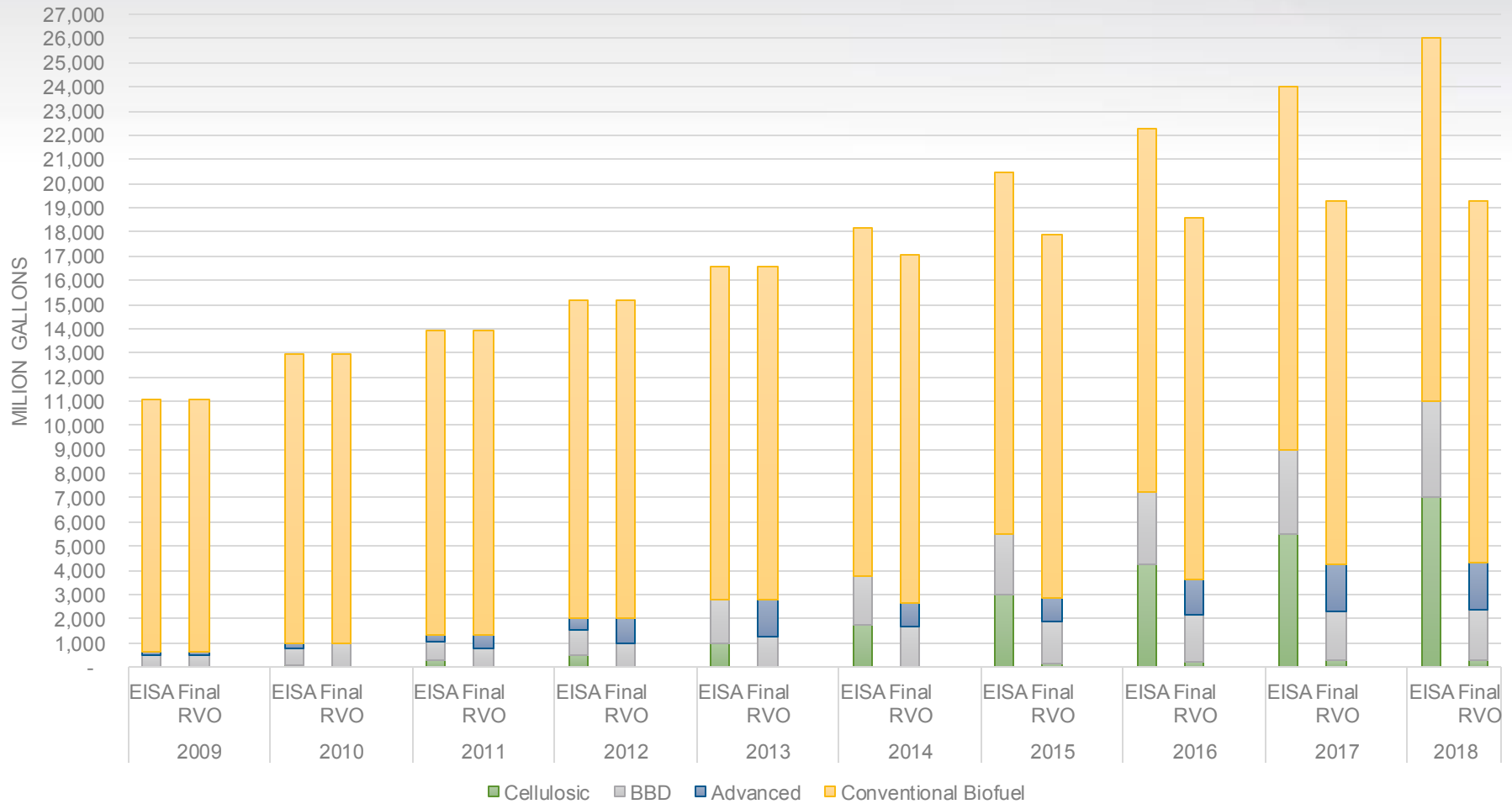
Final Volume Requirements			
	2017 (bln RINs)	2018 (bln RINs)	YoY Change
Cellulosic biofuel	311	288	(23)
Biomass-based diesel	2,000	2,100	100
Advanced biofuel	4,280	4,290	10
Renewable fuel	19,280	19,290	10

Final Volume Requirements		
	2018 (bln RINs)	2018 (bln Gals)
Cellulosic biofuel	288	288
Biomass-based diesel	2,100	1,400
Advanced biofuel	4,290	2,860
Renewable fuel	19,290	17,860

- All values are ethanol-equivalent on an energy basis, except for BBD which is biodiesel-equivalent
- The 2018 Advanced volume requirement was established in the 2017 final rule
- Biomass-based diesel mandates are finalized 1-year prior to obligation year (i.e. 2019 finalized on Nov 30th, 2017)

Final RVO vs. EISA Proposals

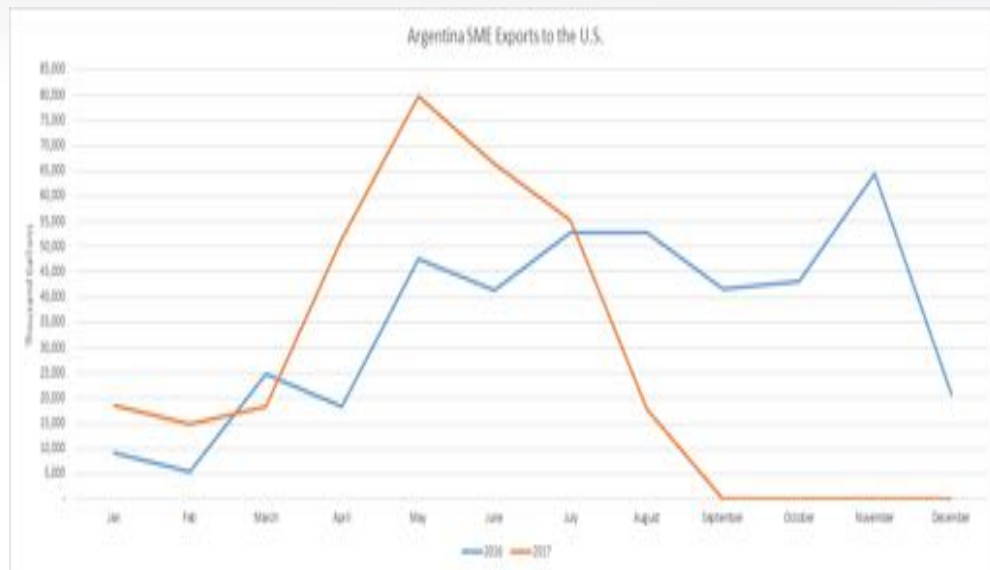
EISA Volumes vs. Final RVOs



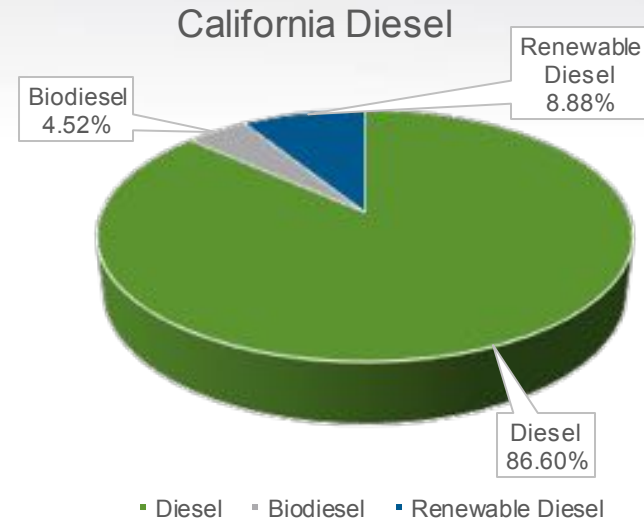
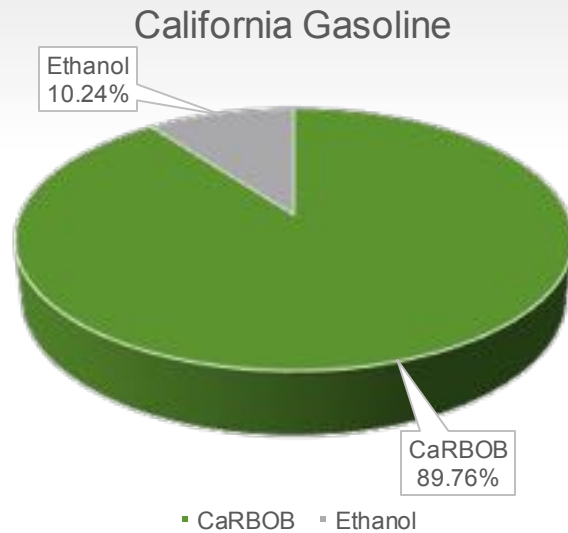
*note – EISA volumes were set in 2007 Energy Independence & Security Act

What's Next For RFS?

- U.S. imposes anti-dumping and countervailing duties on Argentine biodiesel imports
 - Preliminary rulings on Oct 23rd & Nov 9th
 - ITC confirmed on Dec 5th
 - Combined duties average 71.9%
- The House and Senate passed 2-year funding bill on Feb 9th
 - Biodiesel tax credit (BTC) included but only retroactive for 2017 and not applicable to 2018
 - Expected \$3.3 billion injection into EPA registered biodiesel producer margins
- Known RVO mandates yet, obligated parties not feeling obligated
- 2019 Advanced RVO deadline is Nov 30th, 2018
 - EPA to propose initial volumes by July 2018 and allow for comment period



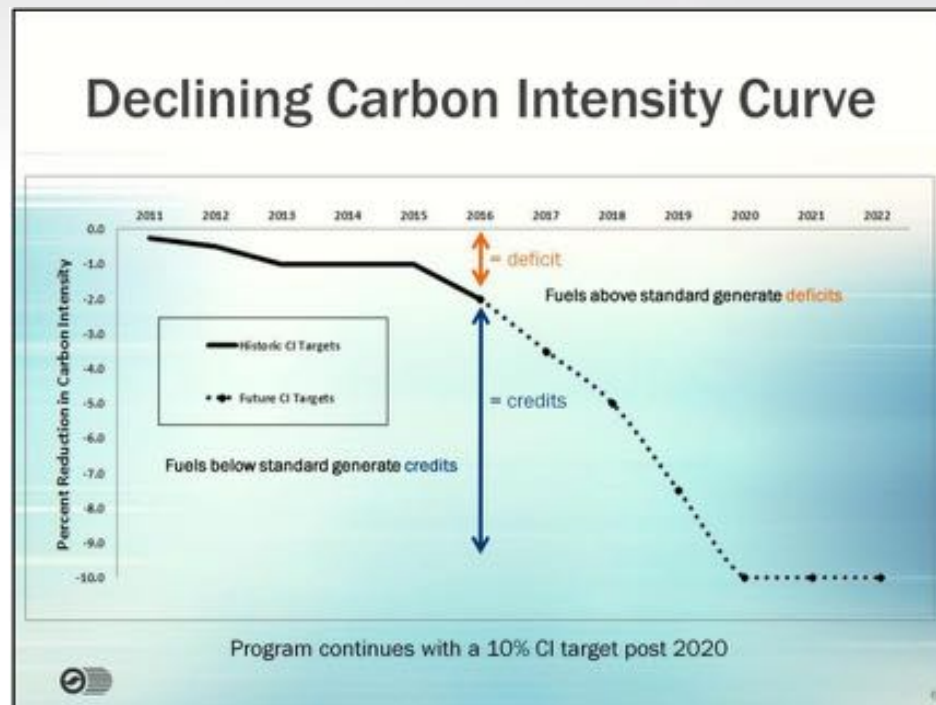
California Biofuel Market



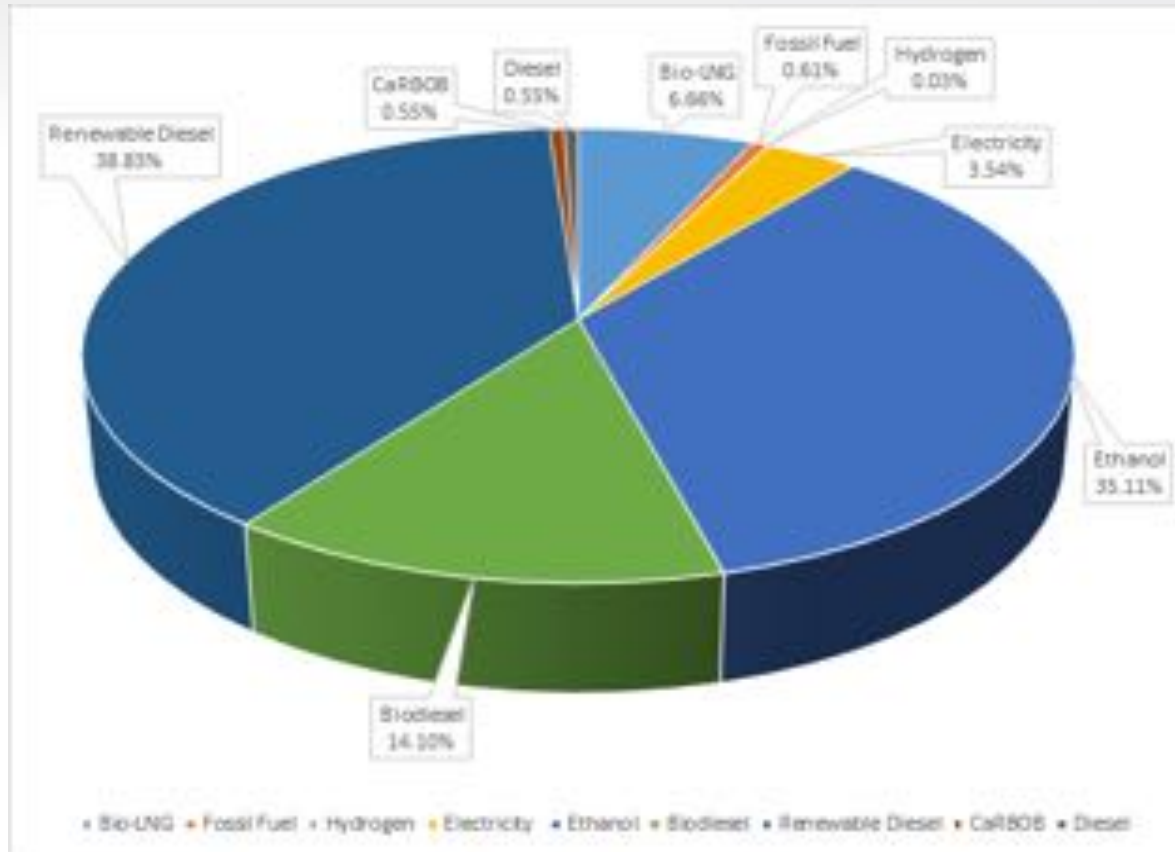
- California consumes 15.6 billion gallons of gasoline, 10% of the gasoline consumed in the United States
- California consumes 3.8 billion gallons of diesel fuel, 7% of the diesel fuel consumed in the United States

What is the LCFS?

- The Low Carbon Fuel Standard (LCFS) is a program administered by the California Air Resources Board (CARB)
 - Market-based cap and trade approach to lower greenhouse gas emissions from petroleum-based fuels
 - Signed into law in 2007 and implemented in 2011
- Principle LCFS Elements
 - Establishes a life cycle scale assessment of the carbon content for each fuel used in LCFS
 - Emissions capture from extraction, transport, refining and distribution
 - Carbon Intensity (CI) score expressed in terms of CO₂-equivalent per megajoule of energy
 - Establishes an implementation schedule
 - Tiered reduction levels on an annual basis, culminating with 10% reduction by 2020
 - Establish a means for alternative fuel producers and traditional fuel producers to participate in credit market
- Declining CI Curve
 - Fuels and fuel blendstocks introduced into California fuel system that have a CI higher (lower) than the applicable standard generate deficits (credits)
- Expected Benefits
 - Transform and diversify fuel pool
 - Reduce petroleum dependency
 - Reduce emission of other air pollutants



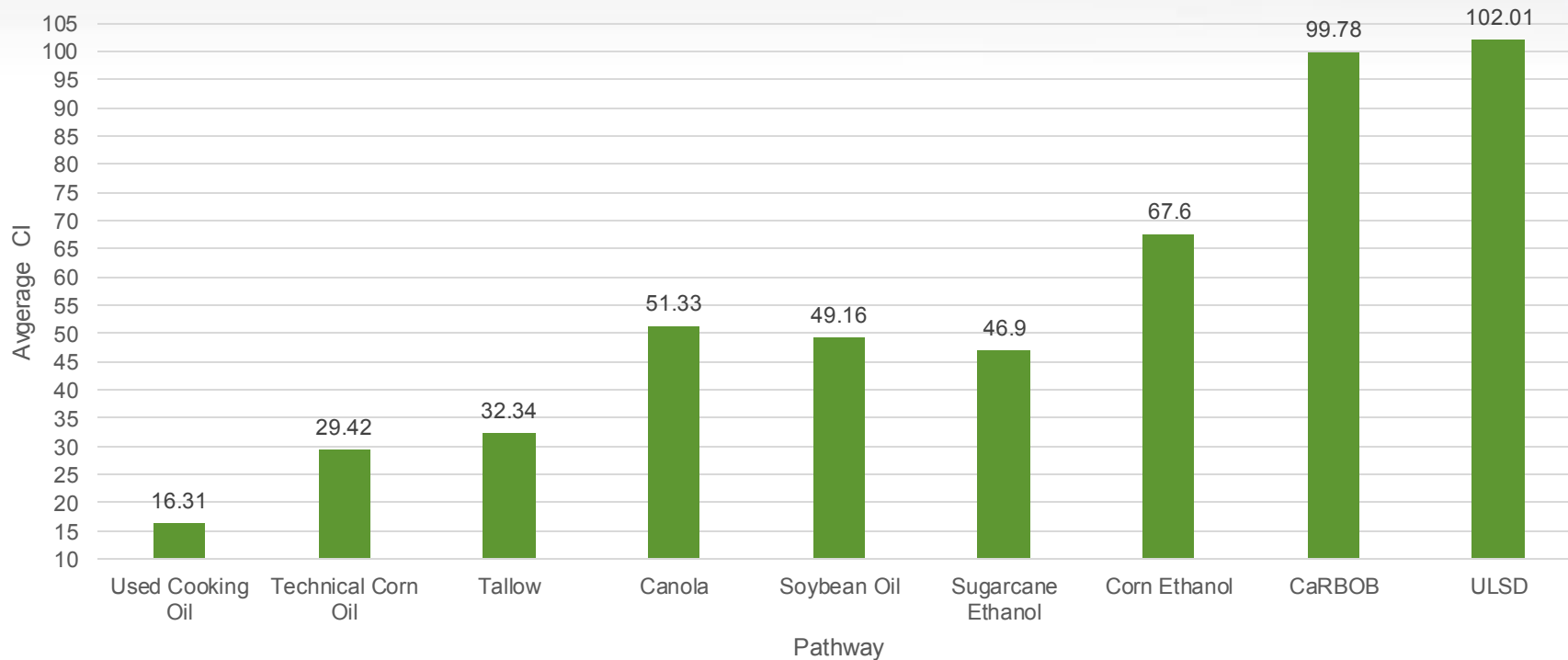
What's Creating LCFS Credits?



Source: CARB

What Drives Credit Generation?

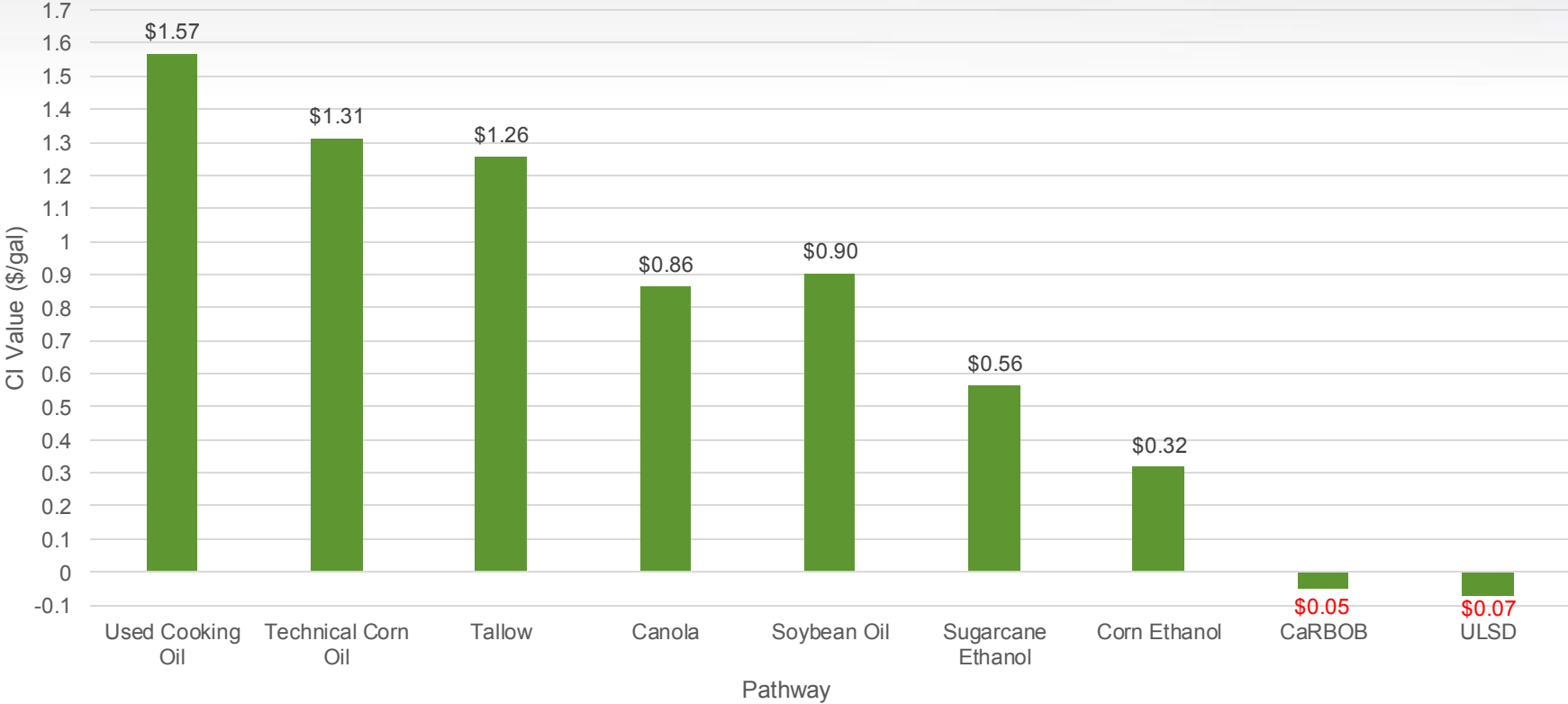
Average Carbon Intensity Values



Source: CARB

CI Value Per Gallon

CI Values (\$/gal)



Source: CARB

Others Following California?

- Pacific Coast Collaborative Agreement (PCCA)
 - California, Alaska (observed), Oregon, Washington & British Columbia
 - Regional agreement to strategically align policies to reduce greenhouse gases and promote clean energy
 - California, Oregon & BC have existing LCFS programs in place
- Washington State House Bill 2338
 - Cleared House Transportation Committee on Feb 7th, 2018
 - Directs the Department of Ecology to adopt a clean fuels program similar to ones in California and Oregon
 - Require fuel producers to reduce the carbon emissions associated with their products 10% below 2017 levels by 2028
 - Program would begin in 2020
 - Bill now headed to the full House for consideration
<http://app.leg.wa.gov/bills/summary?BillNumber=2338&Year=2017#billhistorytitle>
- Oregon Clean Fuels Program
 - Very similar to California LCFS
 - Regulated parties must comply by balancing credits and deficits for 2016/17 by the end of the 2017 calendar year
 - Starting in 2018, regulated parties must comply yearly by the end of each calendar year
 - CI measured from OR-GREET model
 - If fuel already approved by CARB then the business can adjust to OR-GREET to account for transportation distances
 - Or, new fuel pathway must be approved by Oregon DEQ
 - Or, temporary CI values can be used for up to two quarters



	Clean Fuel Standards (gCO ₂ e/MJ)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
% reduction	0.25	0.50	1.00	1.50	2.50	3.50	5.00	6.50	8.00	10.00
Gasoline	98.37	98.13	97.66	97.16	96.18	95.19	93.71	92.23	90.75	88.78
Diesel	99.39	99.14	98.61	98.12	97.12	96.12	94.63	93.14	91.64	89.65

*<http://www.oregon.gov/deq/FilterDocs/cfpoverview.pdf>

About Green Plains



Company Overview

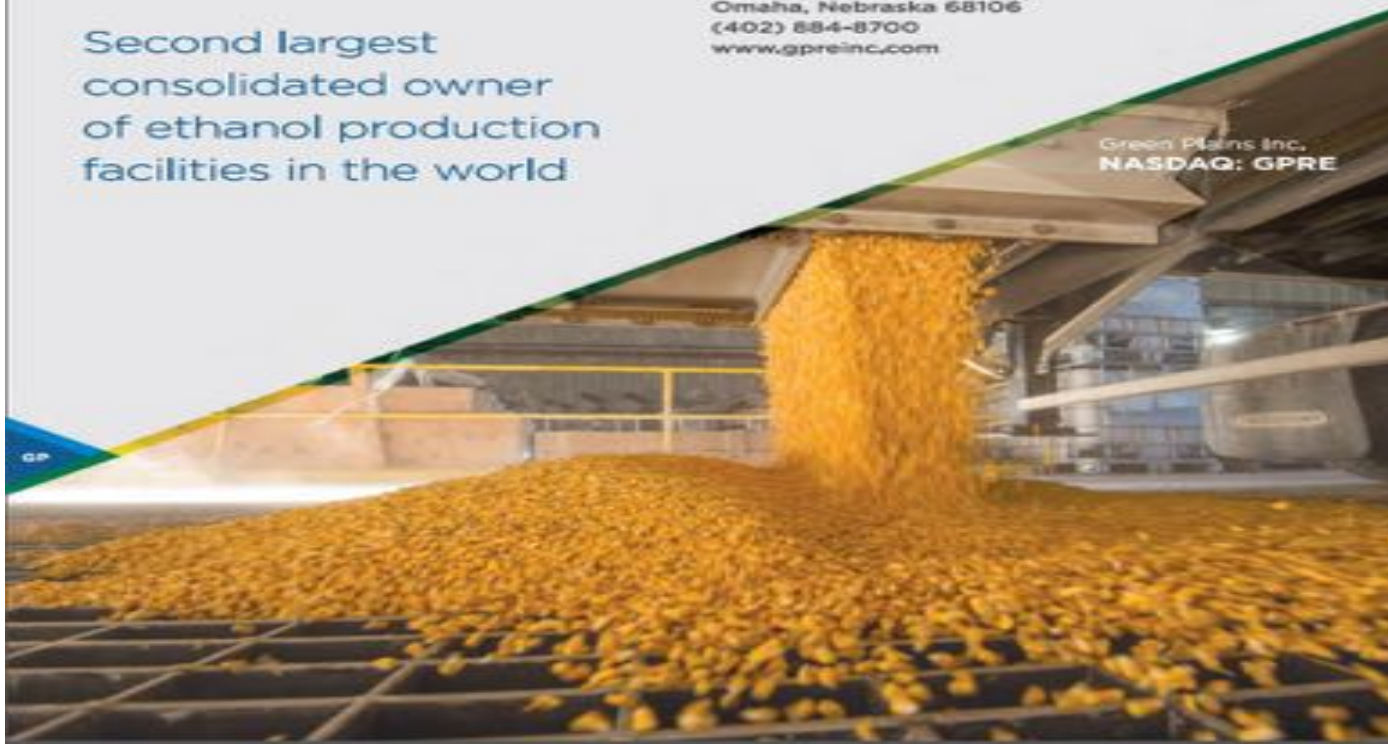
Green Plains Inc. is a publicly traded diversified commodity-processing business with approximately 1,600 employees with operations in 23 states generating over \$3 billion of revenue annually. The company's various businesses are aligned in four segments: ethanol production, agriculture and energy services, food and ingredients, and transportation and distribution services.

The company is the second largest consolidated owner of ethanol production facilities in the world, producing nearly 1.5 billion gallons of ethanol while processing 14 million tons of corn at full capacity.

Green Plains Inc.
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NASDAQ: GPRE



About Green Plains

Ethanol Production

Green Plains owns and operates 17 ethanol plants in Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, Tennessee, Texas and Virginia.

At full capacity, Green Plains expects to process 14 million tons of corn per year and produce 1.5 billion gallons of ethanol, 4.1 million tons of distillers grains and 343 million pounds of industrial grade corn oil.

Green Plains Partners (NASDAQ: GPP)

Green Plains Partners LP was formed by Green Plains Inc. to provide fuel storage and transportation services by owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals, transportation assets and other related assets and businesses.

Green Plains Partners has 38 ethanol storage facilities, fuel terminals in eight locations in seven south-central U.S. states, and approximately 3,150 leased railcars.

Agribusiness and Energy Services

Green Plains Grain buys bulk grain (mainly corn and soybeans) from area producers and provides them drying and storage services. The grain is used as feedstock at our ethanol plants, or is sold to processors and livestock producers. Our four elevators in four states have a combined capacity of 9.5 million bushels, while our ethanol plants provide 48.7 million bushels of storage.

Through Green Plains Trade, we market the ethanol both we and a third party produce to customers worldwide.

To achieve optimal pricing, we also enter into sales agreements with integrated energy companies.

This allows us sell ethanol both at home and abroad under fixed and indexed pricing arrangements.

We also market wet, modified wet and dried distillers grains to local markets and dried distillers grains worldwide through GPT. The bulk of our demand is delivered to regions that lack significant local corn or distillers grains production.

Our railcar fleet for this segment consists of approximately 950 leased hopper cars for distillers grains, and approximately 180 leased tank cars for corn oil and crude oil.

Food and Ingredients

Green Plains Cattle Company is the fourth largest cattle-feeding operation in the U.S. with total capacity of more than 255,000 head of cattle at facilities in Colorado, Kansas, and Texas.

Our vinegar operation, Fleischmann's Vinegar, includes seven production facilities. From our four distribution warehouses located in California, Oregon, Texas and Quebec, Canada, the vinegar is sold to major food industry players, including branded and private label manufacturers. Products include white distilled vinegar and numerous specialty vinegars for retail and industrial uses.

Green Plains Locations

- Ethanol Production Facility
- Green Storage Facility
- Blended Unit Train Terminal
- Third-party Ethanol
- Marketing Plants
- Corporate Office
- Export Unit Train Terminal
- Blended Unit Train Terminal
- Cattle Feedlot
- Vinegar Facility/Office (FVC)
- Distribution Warehouse (FVC)





Green Plains

www.gpreinc.com