



Renewable Fuels Webinar

Sept 1st, 2020



2020

ESG Strength (Jan & Feb)

- Globally we had a strong movement out of the gates in 2020 within the major oil companies announcing broad rebalancing of platforms from fossil towards lower carbon and renewable > Shell, Total, BP, ENI to name a few.
- Renewable interest under the ESG investment trend was getting increased spotlight especially Renewable Diesel production margins.

COVID Pandemic

- Unprecedented and sustained volumetric demand and price destruction to energy markets
- Challenging conditions and often counter-intuitive results across agriculture markets
- Uncertainty around how biofuels market would weather

Post COVID Fuel Demand Landscape

Gasoline and Diesel Demand

- EIA “short term” forecast dated 04/2020:
 - YOY decrease of 9% in gasoline demand
 - YOY decrease of 5% in on road diesel demand forecasted
- EIA “short term” forecast dates 08/202:
 - Estimates that U.S. liquid fuels consumption averaged 16.2 million b/d in the second quarter of 2020, down 4.1 million b/d (20%) from the same period in 2019. The decline reflects travel restrictions and reduced economic activity related to COVID-19 mitigation efforts. EIA expects U.S. oil consumption will generally rise through the end of 2021.

Refiners forced to perform capacity rationalization

- Refiners quickly forced to re-assess refining platforms, logically beginning in compliance driven markets to understand what infrastructure is able to be re-positioned towards renewable operations > renewable diesel > sustainable aviation and coprocessing.

Post COVID Biofuels Impacts

RFS2 Demand

- Actual volumetric decreases will result
- EPA uncertainty as to how they may handle waivers

LCFS Demand

- Decreased overall demand will come at those credit generators sitting highest on the costs curve unless embedded into system, thus not directly at lower CI products such as RD and Bio
- Renewable Diesel and Biodiesel production will sustain and grow

HOW ARE REFINERS MANAGING THIS INCREASING COMPLIANCE BURDEN AND COVID DEMAND DISRUPTION? MASSIVE REFINERY CAPACITY RATIONALIZATIONS ARE PRESENTLY UNDERWAY

bp



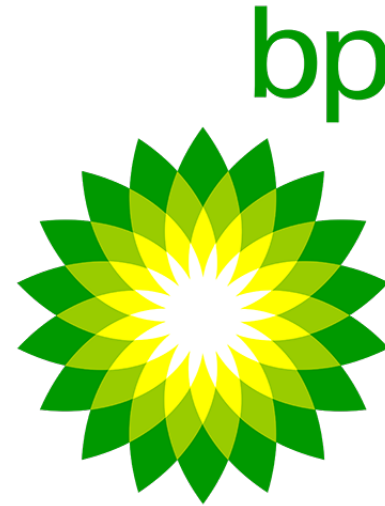
Valero®



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Global Low Carbon Mover in North America

- Common steps:
 - Exited California Petroleum Refining in front of LCFS cost curve hitting the refiners in that market.
- Renewable Diesel/Co-Processing:
 - BP RD/CP upgrades/conversions:
 - Cherry Point WA
 - Stage #1 operational 42mgpy
 - Stage #2 Soy/Canola Oil
 - Shell:
 - Next Fuels RD Offtake 600mgpy OR 2022
 - Jackson MS RD offtake



US Merchant Refiners Moving into Renewables

Common steps:

- All moving towards credit generating and compliance offsetting strategies.

Valero:

- Diamond Diesel 275 M Gals expanding to 675 M Gals in LA
- Diamond Green Port Arthur TX – 400 M Gals planned
- VeraSun (16) Ethanol plants 1.6 B Gals



Marathon:

- Martinez, CA Renewable Diesel plans for 2023
- Dickinson ND Renewable Diesel Refinery 2020
- Ethanol Plants
- Cincinnati Biodiesel Plant

P66

- Rodeo CA Refinery conversion 2024 800 M Gals
- Ferndale Renewable Diesel Refinery next?
- Pilot program of “R99” Retail stations in CA
- Ryze Renewable Diesel 100% offtakes Reno and Las Vegas – projects have failed to launch



Sound Strategies Are Emerging Fast

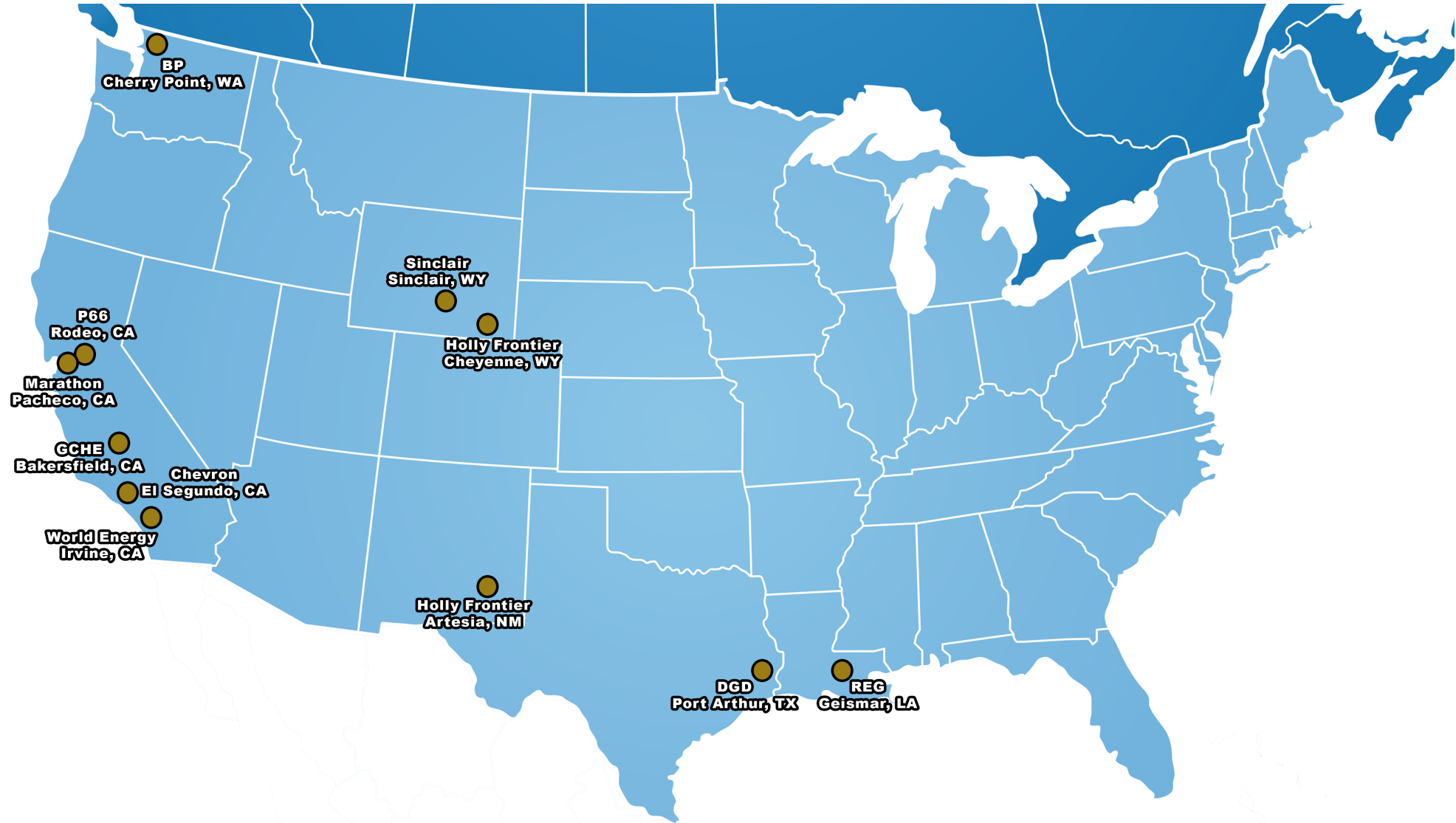
ExxonMobil's West Coast Low Carbon Steps:

2016	ExxonMobil sell's it's California refinery to PBF	Effectively exits the new LCFS refinery environment
2020	ExxonMobil announces Renewable Diesel offtake from Bakersfield CA conversion.	Effectively exits California LCFS market as a petroleum refiner and supplier to re-enter as a Renewable Diesel supplier in the coming years.

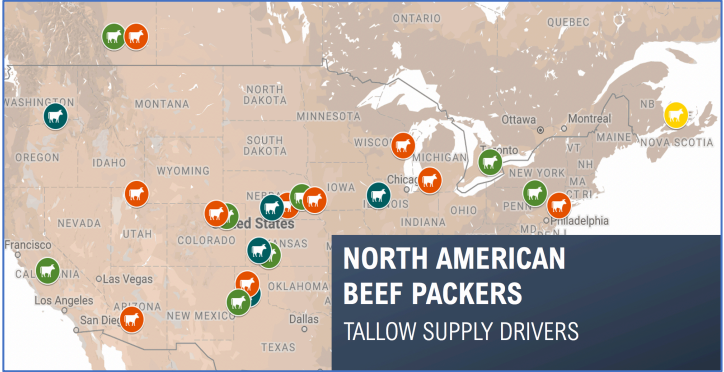
New Locational Demand For Feedstock Is Coming

U.S. Current RD Prod'n Refinery	Current RD Prod'n (gal/day)	Projected RD Capacity (Mmgv)	2021 Capacity (Mmgv)	2022 Capacity (Mmgv)	2023 Capacity (Mmgv)	2024 Capacity (Mmgv)	Location
Diamond Green Diesel (DGD)	795,000	675,000,000	275,000,000	675,000,000	675,000,000	675,000,000	Norco, LA
REG Geismar	242,000	350,000,000	75,000,000	75,000,000	75,000,000	350,000,000	Geismar, LA
Paramount - World Energy	125,000	300,000,000	40,000,000	40,000,000	300,000,000	300,000,000	Long Beach, CA
Jaxon Energy - Shell	105,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	Jackson, MS
Sinclair - Wyoming		100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	Sinclair, WY
U.S. Co-Processing Refinery							
Cherry Point - BP	110,000	40,000,000	40,000,000	40,000,000	40,000,000	40,000,000	Cherry Point, WA
Kern Oil	11,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	Bakersfield, CA
U.S. Conversions / Newbuilds							
P66 - Rodeo	0	680,000,000	60,000,000	120,000,000	120,000,000	680,000,000	Rodeo, CA
NEXT Renewables (BP)	0	600,000,000	0	190,000,000	190,000,000	600,000,000	Port Westward, OR
DGD (Port Arthur, TX - 2024)	0	400,000,000	0	0	0	400,000,000	Port Arthur, TX
Marathon - Dickinson	0	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	Dickinson, ND
Holly Frontier - Artesia	0	120,000,000	0	120,000,000	120,000,000	120,000,000	Artesia, NM
Global Clean Energy Holdings	0	105,000,000	0	105,000,000	105,000,000	105,000,000	Bakersfield, CA
Ryze Renewables	0	100,000,000	0	10,000,000	10,000,000	10,000,000	Las Vegas, NV
Holly Frontier - Cheyenne	0	90,000,000	0	90,000,000	90,000,000	90,000,000	Cheyenne, WY
CVR Energy - Wynnewood	0	90,000,000	0	90,000,000	90,000,000	90,000,000	Wynnewood, OK
Ryze Renewables	0	50,000,000	0	5,000,000,000	5,000,000	5,000,000	Reno, NV
Total	1,388,000	3,924,000,000	814,000,000	6,879,000,000	2,144,000,000	3,789,000,000	

New Locational Demand For Feedstock Is Coming



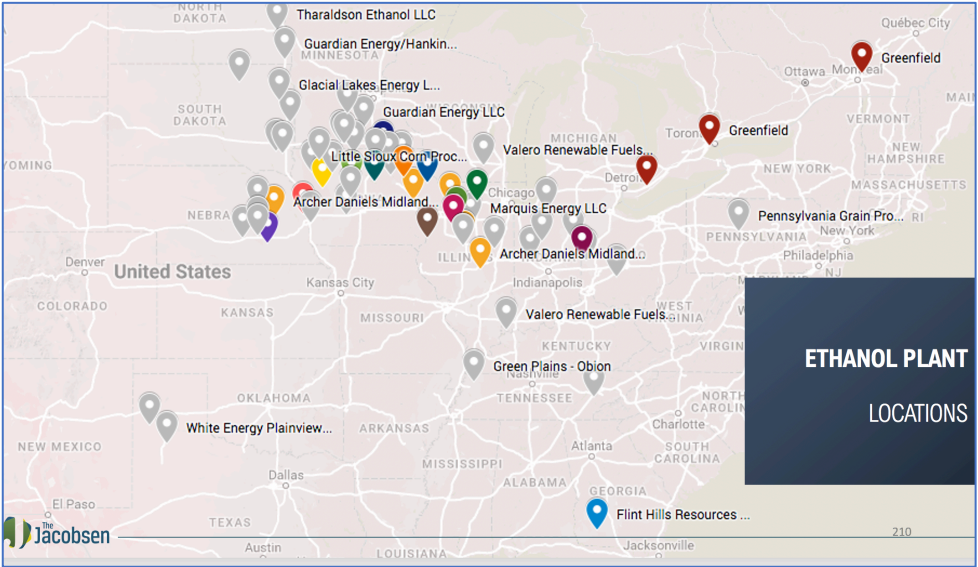
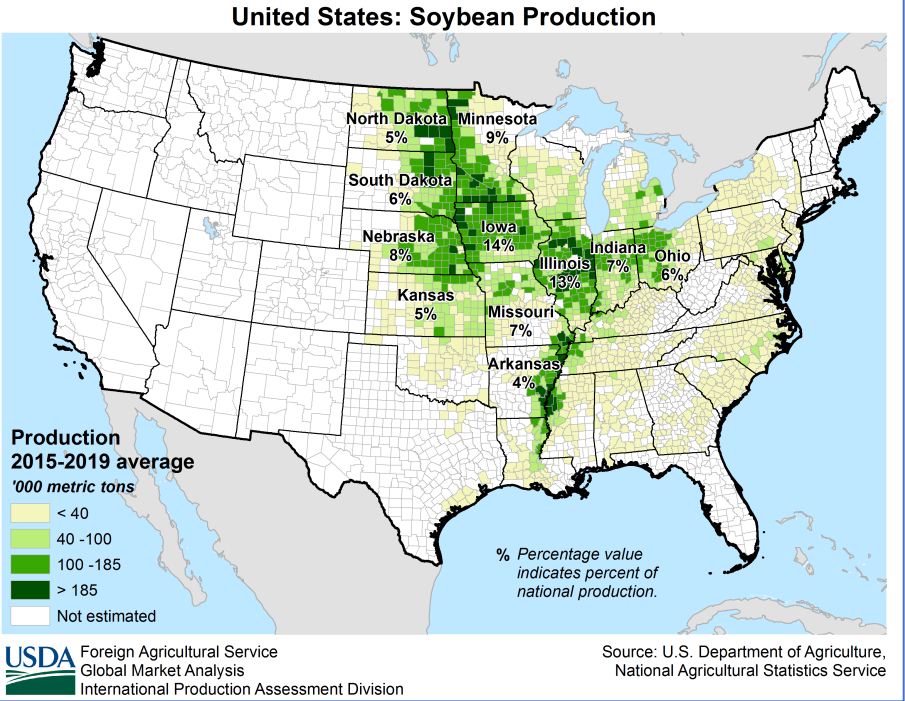
Feedstocks Markets Will Adapt Quickly:



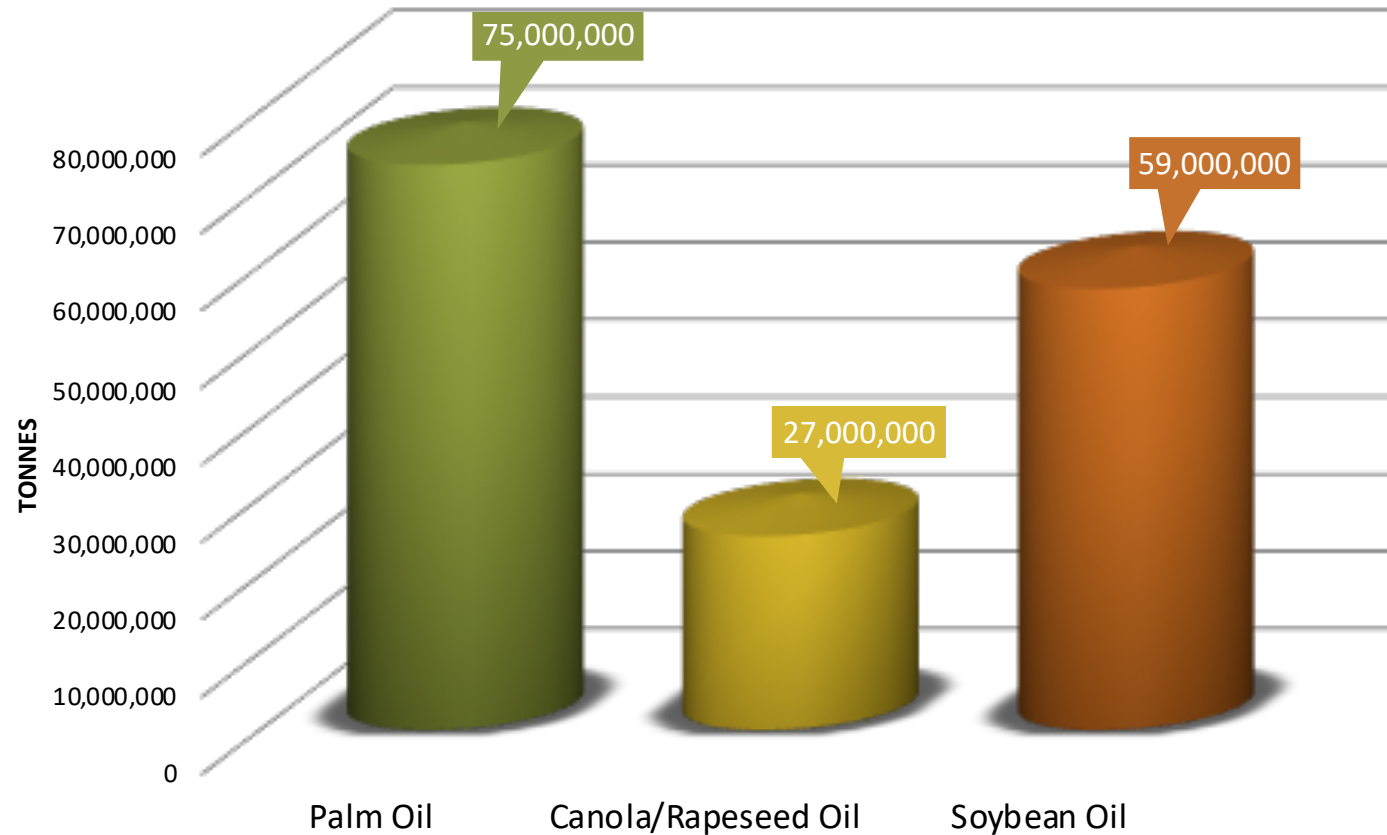
CHOICE WHITE GREASE:

- Origins: US and Canada
- Modes of transport to West Coast:
 - Truck and Rail
- Economics into West Coast:
 - Truck Option: 5-15 cpg
 - Rail Option: 20-35 cpg
- Production is a function of hog slaughter. In the US most large packers produce choice white grease and lard. Smaller pork packers and most of the Canadian pork processors rely on independent renderers to collect and process their offal and trim into fat and meal.

Jacobsen



World Production



- Record monthly crushing volumes have kept the oil markets well supplied.
- Despite relatively low crushing margins, an expected recovery in margins should continue to drive robust crush volumes and keep oil supplies at or above the present high levels.
- Recent announcements by Major Oil company's is adding new demand to the forward curve.

Strong Production Outlook for 2020



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