Global clean energy

Investor Presentation

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Ticker: GCEH | **Market: OTCQB**





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Global Clean Energy Holdings, Inc. (GCEH)

About Global Clean Energy

We are a uniquely positioned, vertically integrated nonfood feedstocks and renewable fuels company focused on **producing the least carbon intense, lowest cost renewable fuel possible without impacting food security or causing land use change.**

- Early entrant in renewable fuels
- 15+ year focus on renewable fuels feedstocks
- Vertically integrated, farm-to-fuel structure
- Nonfood camelina feedstock
  - Proprietary Intellectual Property (IP)
  - Ultra-low Carbon Intensity (CI) renewable fuels
- Bakersfield Renewable Fuels Refinery
  - Production focus on Renewable Diesel (RD)
- Strong ESG focus
- Scalable operations
- Strong strategic relationships

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Global Clean Energy's Roots

Origin Story

- Biodiesel joint venture – early 2000s
- Camelina into renewable fuel production, three-year DOD SAF contract
- Addressing the problem – **Future Feedstock Scarcity & Supply/Cost**
- **Tenured history** in **feedstock development** - the foundation of our business
- **15+ years** of plant science, R&D and proof of commercial production of nonfood feedstocks

Renewable Fuels Innovator

- **Differentiated** renewable fuels **platform** that aims to **address** the industry wide **feedstock transition away from food-based sources**
- Developer of **sustainable**, ultra-low carbon feedstock technology and **patented** intellectual property

Proprietary Feedstock Cultivator

- Largest **nonfood-based energy crop** (camelina) producer worldwide
- Over **15 years** of cultivation **across 24 states** plus Canada, with acreage **currently under cultivation** in **five states** and **five countries**

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Focus on Renewable Diesel

A chemically identical, cleaner fuel that is a **drop-in equivalent** to traditional petroleum-based diesel but with fewer contaminants.

What is renewable diesel?

- **Biomass-based** fuel
- Uses:
  - **Modern diesel engines**
  - Home heating
- Development:
  - Feedstocks include **camelina**, soybean oil, used cooking oil, tallow or various vegetable oils
  - Feedstock is processed by hydrotreating
- Renewable diesel **does not have a blend wall** like biodiesel (i.e. B5 and B20)
- Unlike biodiesel, renewable diesel has:
  - **Better** cold weather performance
  - **Lower** microbial growth issues

What is renewable diesel used for?

- Renewable diesel can utilize the same infrastructure and function as a **drop-in replacement** for petroleum-based diesel
- Lower levels of contaminants enable renewable diesel to burn cleaner than petroleum-based diesel, **reducing local emissions by up to ~33%**
- Up to **90% GHG reduction**
- Renewable diesel **reduces engine maintenance issues**
- Qualifies for the **RFS, BTC** and **LCFS** renewable incentive programs, as well as European programs such as **REDII**

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Vertically Integrated

Our Competitive Advantage – Farm-to-Fuel Structure

- Unique vertical integration strategy **bridging traditional agriculture and traditional energy**
- Farm-to-Fuel model allows greater efficiencies throughout the value chain, **lowering our CI**
- Ownership of **largest portfolio of patented camelina genetics**
- Expanding cultivation of our **proprietary nonfood camelina crops** as feedstock for our renewable fuels refinery
- **Streamlined** aggregation, storage and transportation of our feedstock
- Ownership of the **Bakersfield Renewable Fuels Refinery**
- **Meal co-product** FDA approved for livestock feed
- **Advantaged offtake agreements** covering 100% of renewable diesel and renewable propane production

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What makes us unique: camelina sativa

Sustainable ag is the NEW upstream.
We contract directly with farmers to produce our ultra-low carbon feedstock.

Camelina: Protects like a cover crop. Pays like a cash crop.

Grown on fallow land between crop cycles

- Provides additive revenue for farmers on fallow land cycles
- Capital light and highly scalable: Utilizes farmers' existing agricultural equipment, logistics and storage

Low water crop

- Grows on dryland (rain-fed) farms
- Does not compete with food crops for scarce water resources

Nonfood

- Does not displace food crops
- Does not result in direct or indirect land use change (ILUC) carbon penalty

Low input crop with high yield

- Our high yielding camelina produces revenue per fallow acre
- Camelina grain yields more than twice the oil content of soybeans

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Producing ultra-low carbon renewable fuels

- Camelina based renewable diesel has an estimated carbon intensity (CI) Score of ~24 (without meal credit) and an estimated **CI Score of ~7 (with meal credit).**
- Camelina has the potential to receive the lowest CI score of available feedstock on the market.
- Renewable diesel and other renewable fuels produced with our proprietary camelina varieties have the potential to achieve a **Net Zero or below CI score.**

Regulatory Approvals

- USDA crop **insurance eligible**
- USDA **labeled & approved** plant protection chemicals

- RFS **pathway approval** for conversion into **D5 and D4 for RIN** generation & compliance

- **FDA approved** for meal as a livestock feed additive

- **Lowest CI** virgin oil feedstock pathway **approval** under CA's LCFS
- Approval applies only to Global Clean Energy's **patented** plant varieties

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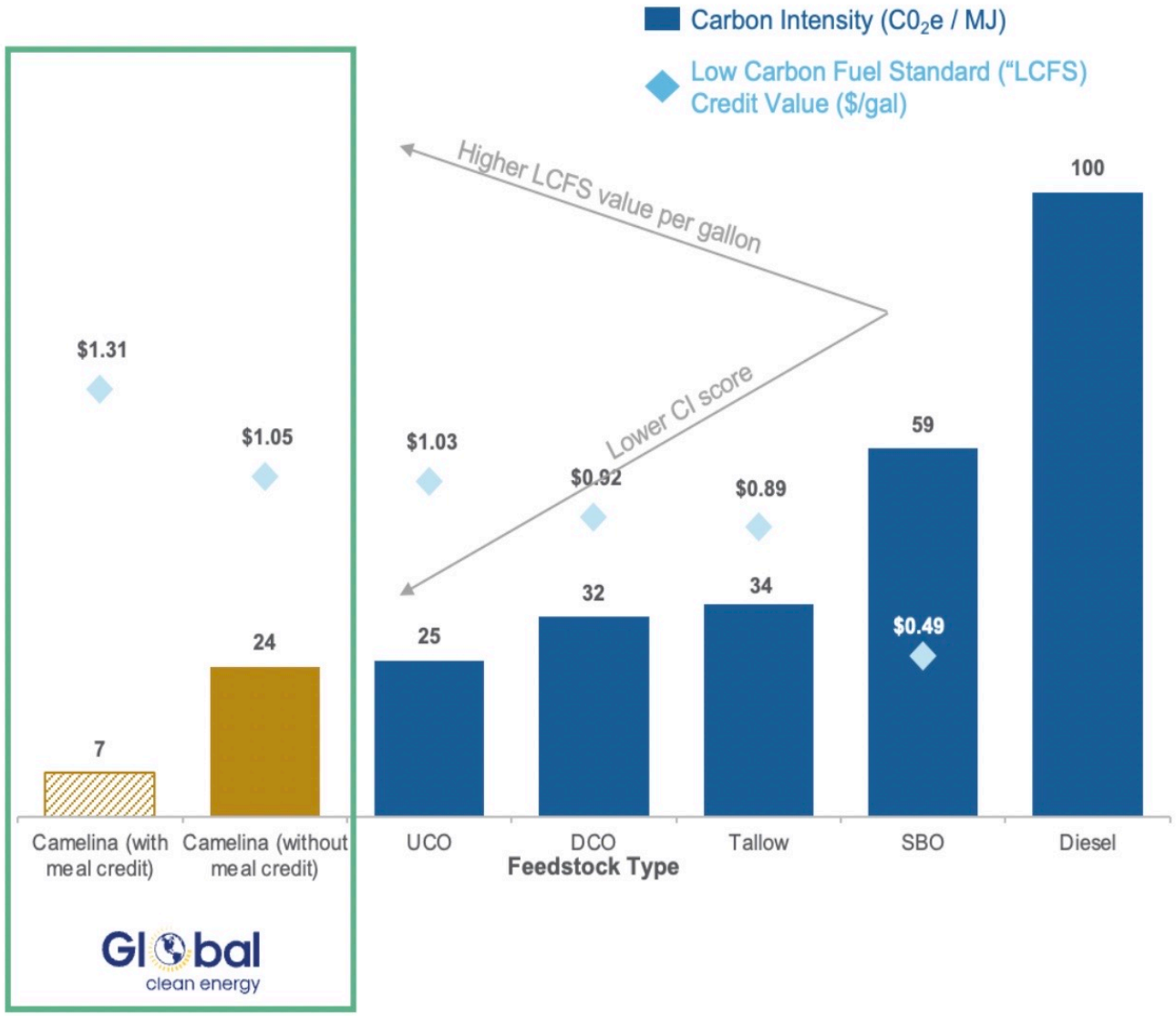
LCFS Pathway

Global Clean Energy has been granted a first-of-its-kind feedstock-only LCFS pathway by the California Air Resources Board (CARB) for renewable fuels produced from our proprietary camelina varieties.

As of today, no other camelina oil can produce CARB-LCFS compliant fuel.



Source: CARB GREET 3.0 pathways (DCO excludes East Kansas Agri-Energy and Jaxon pathways).
Note: LCFS price per credit assumes $121.50 from Jacobsen as of 3/28/22, CA LCFS Benchmark assumes 2022 Diesel CARB benchmark of 90.41 and RD energy density of 129.65. Camelina CI score with meal credit is a Management estimate and has yet to be approved by CARB.
Definitions: SBO - Soybean Oil; DCO - Distillers Corn Oil; UCO - Used Cooking Oil.

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Mature Patent Portfolio

Global Clean Energy owns the world's largest camelina patent and plant variety protection portfolio.

Purposefully bred to increase yield, quicken maturity, enhance stress tolerance, and use less water and other inputs.

Our competitive advantage is protected by a robust IP portfolio, differentiating us from peers.

- Sustainable Oils - four issued U.S. patents, six pending patent applications, six Plant Variety Protection Certificate applications, and owns 8,000+ entry tilling library
- Camelina Company Espana – owns 11 proprietary camelina varieties and maintains an active plant breeding program with more than 600 camelina accessions and varieties
- Agribody Technologies – owns 15 issued U.S. patents related to the use of bioengineered and non-bioengineered genome editing technologies to increase yield and other sustainability traits in camelina and many other crops

Global clean energy companies:

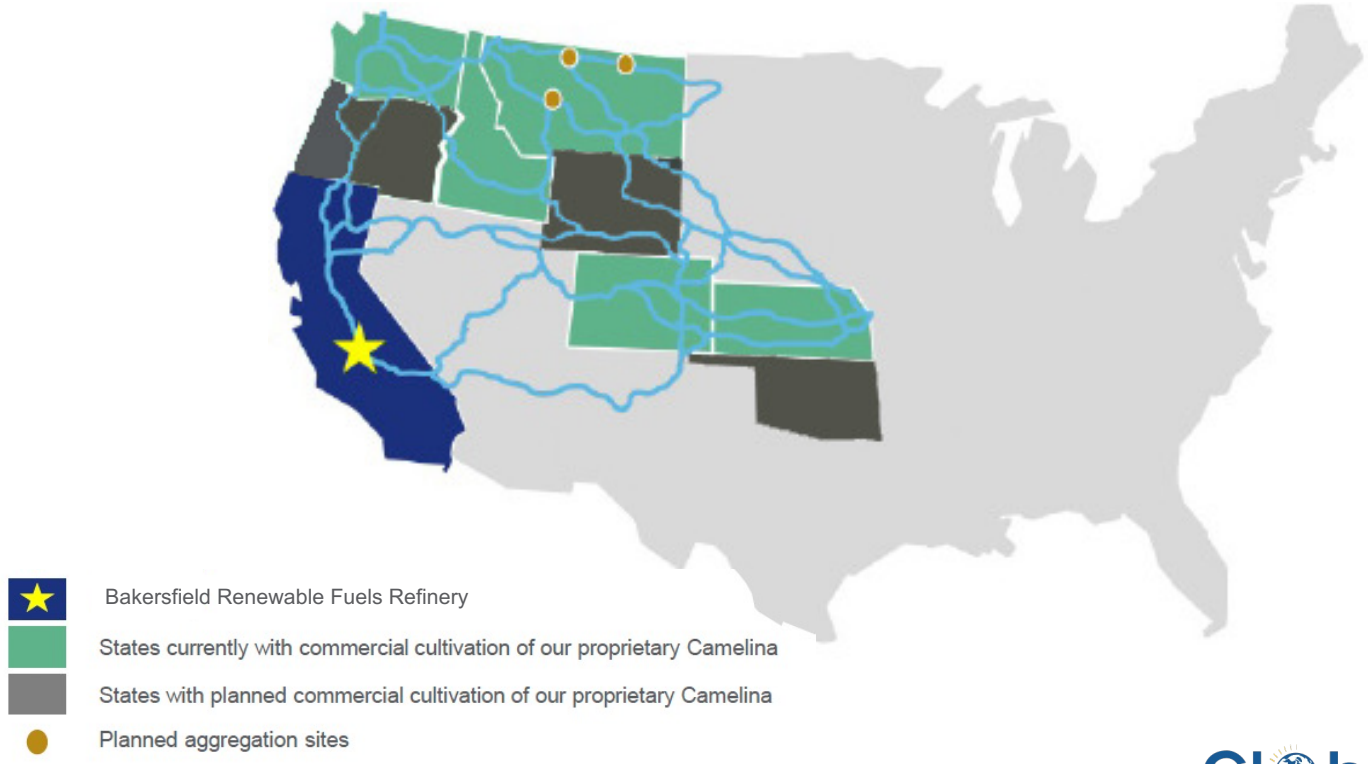
Sustainable Oils

Camelina Company | España

Agribody Technologies

Primary U.S. Agriculture Regions

- North American focus in Northern Plains, Pacific Northwest, and Midwest
- Strategically located along Class I railways (BNSF)
- Minimizes impact on CI score associated with transportation
- Driving to “Net Zero” carbon emissions



Global Agriculture Regions

Camelina scalability in North America, South America, and Europe

Over 100 million camelina opportunity acres in targeted regions

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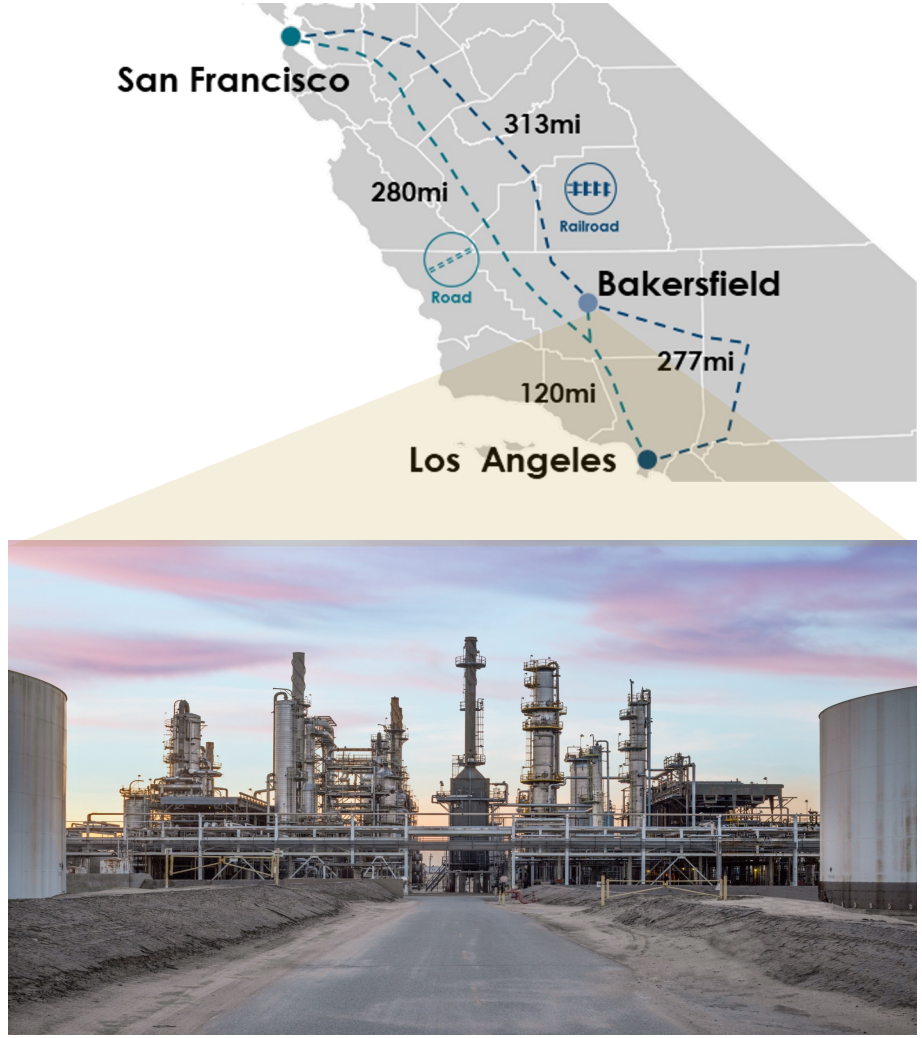
Bakersfield Renewable Fuels Refinery

- Converting former petroleum refinery to renewable fuels refinery
- Strategically located in Bakersfield, CA
- 510-acre site
- Over 3 million barrels of storage capacity
- Nameplate production of 15,000 barrels (630,000 gallons) per day
- Highly advantaged local logistics in largest U.S. compliance market
- Proven technology can run on multiple feedstocks (including camelina) providing ongoing production flexibility



Strong Focus on Enterprise Sustainability

In order to succeed, energy transition businesses need to be **environmentally**, **socially**, and **economically sustainable**.

Global Clean Energy is one of the few energy transition businesses that **accomplishes all three**.

Environmental

- Lowering carbon emissions
- Enhancing food security
- Not competing for valuable water resources

Social

- Contracting with farmers produces rural economic development, providing additive revenues from fallow land
- Contributing to the “Just Transition” from jobs in traditional industry to clean energy careers

Economic

- Focus on capital-light upstream growth
- Streamlining efficiencies in every step of the value chain
- Regulatory mandates deliver premium value for our low CI fuels

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Our Scalability Sets Us Apart

The single largest constraint to the growth of renewable fuels is the unmet supply of sustainable feedstocks to meet future market demand.

- Our camelina feedstock is scalable and doesn't displace food
- Strategic focus on capital light feedstock investment
  - Industry-wide underinvestment in feedstock
  - Growing crop innovation program
- Less cost to grow camelina
  - Offsets fallow land costs
  - Amortizes farmer assets across additional acreage and revenue
- Scalable growth platform
  - Robust and protected IP portfolio
  - Large energy and agricultural partnerships/joint ventures

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Strategic Relationships

ExxonMobil – $125M direct investment and advantaged offtake agreements covering 100% of renewable diesel from our Bakersfield Renewable Fuels Refinery.

AmeriGas, UGI – AmeriGas Propane, the nation's largest retail propane marketer, will purchase and distribute renewable LPG produced at our Bakersfield Renewable Fuels Refinery.

CHS – Partnership with CHS Farmers Elevator and Ag Partners, LLC gives eastern Montana camelina growers more convenient access to our certified proprietary camelina seed with agronomy consulting and grain delivery services. We also partner with CHS Big Sky to serve the needs of central and western Montana growers.

U.S. Growth Strategy and Goals

Rapid, responsible, and scalable growth.

Upstream: Camelina Development	• Grow **local and regional** feedstock relationships • Expand purpose grown camelina to greater overall percentage of feed demand
Midstream: Agriculture Assets	• Locate grain elevation, cleaning and storage assets near **primary** camelina agricultural regions • Focus on Northern Plains, Pacific Northwest, and Midwest
Downstream: Bakersfield Renewable Fuels Refinery	• Continue managing Engineering, Procurement & Construction process to begin renewable diesel output and delivery
Onsite Crush Plant	• Crush camelina and soybeans onsite in Bakersfield, **removing the need to pay for toll-processing** • Benefits: feedstock cost, **lower CI**, waste stream utilization, meal sales, corporate credits and **increased supply certainty**
Hydrogen Plant Expansion	• **Increase hydrogen production** to increase overall renewable fuels capacity • **More efficient** Steam Methane Reforming, **reducing the CI** of output and lower natural gas costs • Surplus H2 to market or for further expansion of the Bakersfield Renewable Fuels Refinery
Carbon Capture	• Capture **65% to greater than 95%** of CO2 for carbon capture utilization and storage (CCUS) • Initial design case complete • Potential to benefit from Section 45(Q) tax credit for carbon sequestration
Renewable Fuels Refinery Expansion	• **Increases capacity** by an additional **15,000+ BPD**
Waste Heat Recovery to Power	• **Use waste heat** to generate electricity and steam for the facility, **reducing cost and lowering CI**
Solar PV	• **Displace grid energy** with solar electricity produced on refinery site, **lowering CI**

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Global Growth Strategy

We believe there is significant potential in our upstream business portfolio due to the limited capital necessary to scale and the growing demand for our ultra-low carbon intensity, nonfood feedstocks.

By establishing this foundational platform now, we expect our **future growth will be self sustaining and capital-light.**

Expand camelina production and our integrated business model domestically and internationally

- Grow our camelina operations beyond supplying our own renewable fuels refinery
- Accelerate the deployment of our proprietary camelina feedstock and our business model in the United States and internationally

Achieve a Net Zero GHG footprint and promote ESG ideals

- Increase efficiencies in every step of the production chain, from farm to finished renewable fuels

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Key Investment Highlights

- Integrated farm-to-fuels platform
- Upstream camelina business' capital light growth
- Proprietary access to ultra-low carbon feedstocks
- Robust intellectual property portfolio
- Sustainable solution to reduce carbon emissions
- Geographically advantaged renewable fuels refinery
- Strategic relationships with ExxonMobil and others

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Highly Experienced Executive Team

Richard Palmer
Chief Executive Officer and Founder

35+ years of experience in renewables & commodity management

MOBIUS RISK GROUP · ENRON · Bentley · Southland · USC University of Southern California

Noah Verleun
President

12+ years of experience with Global Clean Energy in commercial & regulatory

J.P.Morgan · OC&C Strategy Consultants · THE ROCKEFELLER UNIVERSITY · USC University of Southern California

Ralph Goehring
Vice President, Chief Financial Officer

17+ years of experience as public company CFO

SandDollar Financial · Berry Petroleum Company · ARTHUR ANDERSEN · Berkeley UNIVERSITY OF CALIFORNIA

Antonio D'Amico
Senior Vice President, Chief Administrative Officer, and General Counsel

20+ years of experience as general counsel and corporate administration

AECOM · OXY Occidental · DePaul University · NORTHWESTERN UNIVERSITY

Mike Karst
Vice President, President of SusOils

35+ years of experience in agronomy sales, marketing & management

BASF We create chemistry · entira · CYANAMID · PURDUE UNIVERSITY

Steve Bonner
Senior Vice President, General Manager Bakersfield Renewable Fuels Refinery

10+ years of management experience in various refinery capacities

Shell · VALERO · PBF Energy · BYU BRIGHAM YOUNG UNIVERSITY

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Experience	SUNHEAVEN FARMS	SLAE Inc. · BroadbandSports · the search agency · tpl · UNITED ONLINE · LATHAM & WATKINS LLP · Pasadena Water & Power · LA DWP Los Angeles Department of Water & Power	ExxonMobil	Enron · Mobius Risk Group · Bentley · Southland	Beowulf Energy · Alpha Energy, Inc. · MiaSolé · colorado energy	ExxonMobil
Education	BYU Brigham Young University	Maurer School of Law Indiana University · Stanford University	UCLA · Harvard Kennedy School	Purdue University	USC University of Southern California	USNA United States Naval Academy · Columbia Business School · USC University of Southern California	University of Louisville
Independent	✓	✓	✓	✓		✓	✓
Audit Committee	✓	✓	✓				
Compensation Committee	✓		✓			✓	
Governance Committee		✓				✓	

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THANK YOU.

Watch us grow!

Contact:
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