MINES ENERGY VENTURE SUMMIT: INVESTING IN THE GLOBAL ENERGY TRANSITION

Ballrooms D&E, Ben H. Parker Student Center

MARCH 3, 2020 | GOLDEN, CO

Sponsored by Colorado School of Mines, Center for Entrepreneurship & Innovation and Office of Research and Technology Transfer.
MINES ENERGY VENTURE SUMMIT

March 3rd, 2020
Student Center Ballrooms D&E
8:30 AM – 5:00 PM

8:30 – 8:45
Arrival and Introductions - Werner Kuhr, Director E&I

8:45 – 9:00
Stefanie Tompkins, Vice President, Research and Tech Transfer
and Will Vaughan, Director Technology Transfer

9:00 – 9:30
Morgan Bazillian, Director, Payne Center for Energy Policy
“Investing in the New Energy Transition”

9:30 – 10:00
Starfire Energy

10:00 – 10:30
PlugBlaster (Prof. Will Fleckenstein)

10:30- 11:00
Reservoir Imaging Solutions

11:00 – 11:30
Ubiterra

11:30 – 12:00
KAIA Corp.

12:00 – 1:00
Lunch & EBGN 576: Student Presentations

1:00 – 1:30
Rare Petro

1:30 – 2:00
Engage Mobilize

2:00 – 2:30
SkyGauge Robotics

2:30 - 3:00
Coffee Break

3:00 – 3:30
Opilii

3:40 – 4:00
Water Lens LLC

4:00 – 4:30
Micro Silicon, Inc.

4:30 - 5:00
NREL: Bio-Oil Production Technology
Background of the Mines Center for Entrepreneurship & Innovation

• The Center for Entrepreneurship was established in 2017. Mines has successfully introduced entrepreneurial thinking through a variety of programs, events and classes to undergraduates, graduate students, faculty and alumni with a goal of solving important problems by applying their exceptional engineering and technical knowledge with an understanding of the fundamentals of customer feedback, pricing, direct costs, and business models.

• As part of Mines@150 Long-Term plan, the Colorado School of Mines will continue to strengthen its curriculum to include entrepreneurial thinking and fundamental business economics to prepare its graduates to develop practical solutions to industry problems.

• Success, satisfaction and participation among students, faculty and corporate partners has increased every year.
  o Student teams have won or finished near the top in national hackathons in Utah, Boston and California
  o Participants in industry-sponsored innovation challenges for mining, outdoor recreation and advanced materials have developed innovative solutions that can be implemented, high satisfaction levels from C-level executives, and a new career placement pipeline.
  o Companies have presented current problems and market opportunities to student teams in entrepreneurship classes – one Spring 2019 student project enabled a company to identify a new market for their technology and secure $5M in venture financing.
  o To encourage faculty innovation with commercial potential and to introduce select faculty to entrepreneurial thinking so that it can be integrated with courses in all majors, the Nickoloff E&I Faculty Fellowship program was established in 2018; 11 faculty have completed the program.
  o Alumni participation with student E&I projects has increased with alumni attending classes as mentors and volunteering as industry experts.

• As a result, Mines is now an emerging player in the Colorado entrepreneurial ecosystem, and has established partnerships with other academic institutions, local startup accelerators and investment partners.

• To continue the progress on campus and in the community, a reliable source of capital is needed for two primary purposes:
  o Grant and scholarship funding for prototype completion and business model development for student projects with a primary goal of supporting education in entrepreneurial thinking rather than an investment return (although some of these projects may progress).
  o Provide equity funding to new ventures with a viable business model to launch the product as a high risk/high return portion of the investment portfolio.

Thank you for joining us today. If you have any questions or would like to contact us for any reason you can reach Werner Kuhr, the Director of Center for Entrepreneurship & Innovation at wkuhr@mines.edu or (303)384-2312.
Rapid Ramp NH₃
Making green ammonia economical

**Distributed green NH₃ for fuel**
- Use NH₃ for heating, electricity or transportation
- Reduce transport costs by deploying near customers
- Seasonal energy storage without transmission infrastructure

**Global clean energy markets are ready**
- California hydrogen fuel by 2029 - $200M/yr
- US renewable energy needs seasonal storage - $125B/yr
- Shipping will decarbonize via carbon-free NH₃ fuel - $145B/yr

**Demonstrate green NH₃, then sell modular systems**
- Enter specialty markets with early modular systems ($41M 2021-2023)
- Ammonia fuel markets from mass produced systems ($767M 2024-2030)
- Shipping industry will start using NH₃ fuel in 2023 - *we will be ready!*

**Talented team is growing**
- Creative, cohesive, 8-person team with previous start-up experience
- Adding managerial and technical staff in 2020

**$3.45M non-dilutive funding to date, $4M equity round now open**

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**Rapid Ramp NH₃ makes clean fuel**
- Uses water, air, and clean energy
- No fossil fuels at all
- PPA's stabilize fuel costs
- Mass produced modules speed installation and reduce project risk
- Deploy according to market demand

**Our technology changes the game**
- Low pressure operation
- Proprietary fast catalyst
- Fast ramping to follow variable power
- No massive reactant buffering
- 7 US/PCT patents pending
- 10 kg/day system build nearly complete
- Minimum viable product - 100 kg/day system is next build

**Contact us for more information**
www.StarfireEnergy.com
303-363-7848
Joe.Beach@StarfireEnergy.com
“Plug Blaster” hydraulic tractor

A Patent Pending Device & Method for Frac Plug Cleanouts in Horizontal Wells

A single horizontal well is typically 10,000’ in lateral length and may have 100 frac stages using “Perf and Plug” perforated frac clusters isolated with frac plugs. These frac plugs must be removed prior to production, and currently are drilled out with coiled tubing, with an estimated 70% of coiled tubing cleanouts using a friction reducing device, such as an oscillator, costing $10,000 per run. Total market size is estimated at 10,000 wells per year domestically, a $70 million-dollar annual revenue opportunity. Premium pricing may be possible on longer laterals which make drilling out the composite plugs used in “Perf and Plug” frac sleeves much more expensive and riskier, with typical coiled tubing cleanouts costing $250,000 well. Dr. William W. Fleckenstein of the Colorado School of Mines has developed the “Plug Blaster” hydraulic tractor to address these longer completions and drill out issues. The “Plug Blaster” is placed between a conventional mud motor and bit using some of the mud motor hydraulic power to physically push/pull the coiled tubing further along the lateral to drill out frac plugs. This technology is patent pending and assigned to the Colorado School of Mines (CSM)

Several prototypes have been built, and the tractor has proven capable of engaging the wellbore, moving along the wellbore, and drilling up a soft plug under surface conditions. The design is simple, using wheels arrayed on the cylindrical tractor body to convert tool rotation into axial motion and force. Wheels are pressed outward into against the casing with internal pressure like hydraulic buttons on packers or hydraulic underreamers. Performance is determined by available torque and rotation speed, force on the wheels against the casing and wheel traction. Further opportunity exists to apply this technology to open hole lateral drilling.

This project cost is currently estimated at $900,000 to build and test downhole tractors. Plug Blaster is willing to sell a 33% interest for $1,000,000 to fund this development.
Reservoir Imaging Solutions provides real-time surveillance and diagnostic services to dynamically image fluid, fractures, and proppant placement during oil and gas well completions. This information helps our clients reduce capital expenditure on well completions, quantify the impacts of completion design modifications, improve well spacing, and deliver superior production type curves.

Reservoir Imaging Solutions offers three main services: (1) Acoustic Imaging® of fluid, fractures, proppant, and lithology; (2) Completion Analytics which streams multi-physics answer products in real time; and (3) Wireline conveyed fiber (DAS/DTS) and geophone acquisition which employs the OptaSense ODH-4 interrogator unit.

Our breakthrough Acoustic Imaging® is a differentiated product that offers high resolution real-time images of fluid filled fractures. Armed with dynamic fluid images, clients can make quick and informed decisions on completion design, well spacing, and parent-child well interaction in the reservoir. This provides the client an opportunity for full field reservoir characterization spanning the fields lifecycle. Data can be gathered with conventional wireline conveyed geophones, wireline conveyed Distributed Acoustic Sensing (DAS), or permanent DAS to deliver Acoustic Imaging®. It can also be applied to any existing downhole or DAS dataset.

Completion Analytics seamlessly integrates varied data types and uses machine learning to deliver well intelligence enhanced production results. A patented framework is applied to parse and generate client-specific results and actionable analytics on web-based platforms, including OSIsoft and PiViewer. Using advanced completion analytics, clients are empowered to improve well spacing designs, completion designs, parent-child well relationships and deliver high quality production type curves. These results will reduce capital expenditures on completions and quantify the impacts of completion design modifications.

Carl Kincheloe
Co-Founder
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www.reservoirimaging.com
Company: Ubiterra is a Delaware C-Corporation located in Denver, Colorado. (www.ubiterra.com)

Founder: Peter Flanagan.

Peter has an MS in Geophysics (Univ. of Arizona) and founded 3 previous software companies and products in the Oil and Gas industry: SPW (bit.ly/parallelgeo), a seismic processing product, SeisVision (bit.ly/seisvision), a widely used 3D seismic interpretation system, and Oildex (bit.ly/Oildex), a very widely used O&G financial transaction web product. In 2019 Peter was co-recipient of the Society of Exploration Geophysicists Cecil Green Enterprise award (bit.ly/pwf-award1).

LinkedIn: https://www.linkedin.com/in/peter-w-flanagan-ba336a2

Market: Drilling software market, with emphasis on horizontal drilling workflows for geoscientists. More than 10,000 horizontal wells are drilled annually in North America. 3D seismic is utilized during the planning and drilling of many of them, and most of them are geosteered. These techniques are utilized by the geoscientists on the asset team to ensure that the wellbore is drilled in or close to the target pay zone. As drilling rates increase, it is becoming increasingly difficult for geoscientists, using the existing generation of PC-based software tools, to keep up for the volumes of data and the requirements to provide drilling target changes, and to stay in coordination with the drilling organization. This often results in drilling errors during complex landings, crossing faults, or in vicinity of hazardous drilling geologies. In addition, the data and interpretations accumulated are often lost, or at best, siloed in difficult to access systems, making well planning and analytics projects more difficult to execute.

Product: ZoneVu, is our browser-based drilling visualization and geosteering software solution. ZoneVu is like an oil company ROC (real-time operations center) distilled down into a browser. It is a cloud application (running in the Microsoft Azure cloud) that is accessed through standard web browsers. It connects to drilling rigs using WITSML. Users upload well plans and 3D seismic data, including SEG-Y files, interpreted grids and fault traces, into a ZoneVu project to prepare for drilling. Data is managed and searched for in a map-based front end and a novel folder structure. There is a geologic modeling capability including definition of stratigraphic columns, import of well tops, and 3D surface and zone definition from grids. There is a rig connection manager.

When the well spuds, ZoneVu provides a real-time 3D and 2D view of the drilling well including a dashboard that includes LWD and MWD data, and engineering data such as ROP and WOB. Users perform geosteering interpretation on the drilling well from within the 2D (well vertical section view). Other users may watch the drilling and geosteering from their browsers and access data. There are enterprise-class controls on who may view or access data. All data is permanently archived in the cloud and is easily accessed by anyone with a browser using ZoneVu’s map interface.

History: Software development of ZoneVu began in 2012. First, the cloud geospatial database and browser map were developed. Next, the 3D visualization engine and 3D seismic display. We were issued a patent on this part of the system (bit.ly/ubiterrapatent1). In 2015, Great Western Petroleum (GW) became a customer. GW drills horizontal wells in the DJ basin. We enhanced the system to be able to connect to a rig for real-time drilling data so that the progress of drilling can be observed in 3D and in well vertical section. Since then, GW has drilled over 250 horizontal wells with ZoneVu, and reports fewer drilling errors and an average of ½ day saved drilling time per well. In 2019, geosteering capability was added and is now in production usage by GW. Also, a Web API has been added, so that data captured by ZoneVu can be retrieved and scripted. There is now an additional customer, and trials underway.

Financials: Ubiterra is post-revenue, but not break-even. Our headcount is 6.

Investment and Partnering Opportunity: Seeking capital for market penetration, and partnership with oil and gas companies interested in adopting ZoneVu in their ops geoscience teams, for trials and production usage. Seeking a $1 to $2 million initial investment with opportunity to invest larger amounts as market penetration proceeds.
Executive Summary

Kaia offers technology design services for challenging science and technology problems. Our flagship product has been developed to understand and characterize reservoir fluid flow and behavior in lab-on-a-chip microfluidic systems.

Microfluidics and micro-reactors are rapidly growing areas focused on flows in micro-channels, MEMS, biomedical flows, and lab-on-a-chip systems offering excellent mass and heat transfer performance for extraction and multiphase reactions. They provide a powerful tool for process intensification and micro scale processing.

For the foreseeable future, the energy needed to sustain economic growth will continue to come largely from hydrocarbon fuels. Our vision is to create technologies for the industry that secure the indigenous fossil energy resources more wisely, cleanly and efficiently through improved understanding of the reservoirs. These new technologies will prolong the economic reservoir life with improved efficiency and environmental performance and lead to better ultimate recovery estimations.

The technology we created enables the refinement of the benefits obtained from microfluidics. More specifically, microfluidics and lab-on-a-chip concepts can be used effectively in the petroleum industry to increase efficiency and accuracy by adapting proper measurement technologies. Characterizing pressure and phase behavior of fluids within unconventional reservoirs is a present and active challenge. Although flow and fluid characteristics within microfluidics can be visualized with microscopes, there are no established technologies to measure fluid properties inside the fluidic chips directly. At present, there is no device or sensor on the market that enables direct quantitative permeability and pressure measurements in the flow channels of microfluidic chips. This information is dramatically needed by the fossil energy industry as it continues to develop, manage, and model reservoirs.

Our device makes measurements that have not been done before.

Our advanced technology measurement device is called PREO. The information it will bring to the fossil energy industry has been defined as "a step toward better production rate estimates and improved reservoir lifetimes." The current methods may lead up to a 50% reduction in the error of recovery estimation calculations from tight-rock reservoirs like shale. The ultimate oil recovery from unconventional shale is less than 10% of hydrocarbons in place, while knowing fluid properties in the flow network could increase oil recovery as much as by 33%.
OUR MISSION IS TO MODERNIZE THE OIL FIELD by creating and leveraging mobile technology while also providing consulting and outsourcing services from a network of professionals in the industry, backed with Professional Engineering Licensing. We mix over 100 years of in-house Petroleum industry experience with a team of US based mobile, web and cloud developers. We understand why products are wanted and the purpose for the need.

RARE PETRO TECHNOLOGIES, INC:
- **OIL & GAS APP LICENSING**
  - Client customizable reference tools/tech for field based and wellsite personnel
- **OIL & GAS MOBILE & CLOUD PLATFORMS**
  - Fill out in field on phone/tablet and see information on a cloud based dashboard in office and perform analyses
- **OIL & GAS MOBILE APP DEVELOPMENT**
  - Customized build from ground up mobile applications
- **ALL** executed in-house by a team of seasoned developers and industry experienced petroleum professionals

RARE PETRO ENGINEERING, PLLC:
- Engaged with multiple oil and gas E&P’s providing Professional Petroleum Services
- Worked with Service & E&P’s in US & Canada
- Worked in design, sales/BD, process flow, opportunity identification

MOBILE/CLOUD BENEFITS vs OLD TECH
- Leverage the best computers and communication devices in the field that everyone is already carrying – their smartphones
- Easy access to view locations of devices/personnel, view captured data/pictures in structured manner. Tools for well-sites and meetings that can operate independently of internet reliability when using apps to check or collect data
- Updates for additions to features or bug fixes simple push to cloud & devices– no need to bring team into customer offices
- Transparency of field activities for safety & ops improvement

DIFFERENTIATORS
- Look at solutions from owner/operator perspective
- Creation of modern tech platforms via in-house active collaboration between coders & petroleum engineers
- Data entry outsourcing services at competitive rates to offshore choices while maintaining onshore jobs and oilfield experience for quality control
- Coding team entirely US based personnel
- Partnership and rapport with Colorado School of Mines Petroleum Engineering Department
- Professional Engineering Certifications for Reserve bookings and Spill Plans (SPCC’s)

RP ORGANIZATION TEAMS & DIVISIONS
- **ENGINEERING**
  - PE Licensures in CO, OK, CA, (TX 2020)
  - Conventional Experience (by state & type)
    - CA/UT/TX/OK
    - Primary, Steam, Water, CO2
  - Horizontal Experience (by basin)
    - DJ, Permian, Anadarko
  - Reservoir, Lift, Completions, Drilling (CA)
- **DATA ENTRY**
  - Well bore diagrams & Permit preparation
  - CA, Rockies, Mid-Con, TX experience
  - Horizontal & Vertical Well experience
- **WELL SITE**
  - 20-40 yr experienced hands
  - Workover/Abandonment Specialists
- **CODING & APP DEVELOPMENT**
  - AWS certified & flexible databases
  - Ability to feed into enterprise systems
Executive Summary

ENGAGE is a digital field management platform that is revolutionizing the way oil and gas companies interact with service providers. The platform interfaces with both operators and vendors, allowing complete transparency for all sides. ENGAGE is the industry preferred solution to digitizing the oilfield and works with all service types in any operation.

As a company, ENGAGE is the perfect blend of industry experts along with established professionals in forward thinking technology. The solution digitally mirrors intricate workflows in the field, making it easy to adopt, while keeping a big picture, data driven approach that is paramount from an executive perspective.

By integrating with other software, ENGAGE can preload pertinent information, predictively schedule repeatable services and streamline ticket information into accounting systems. Leveraging robust modeling tools, the solution creates unprecedented data analytics in real-time. The data collected through the digital ticketing process is pertinent for new technologies such as blockchain and dynamic smart contracts to operate seamlessly.

The product is already disrupting the market, in many cases changing the way contracts are negotiated between operators and vendors. After realizing successful results, ENGAGE clients are moving to rapidly expand the solution to other active basins. Case studies show a dramatic reduction in costs and increased productivity, all while saving precious time for clients. ENGAGE has a complete suite of products that are increasing field efficiencies to unprecedented levels.
Skygauge Robotics has reinvented the drone to perform work not possible with drones today. Drones are increasingly being used by companies to collect data. They’ve mainly been used for mapping, collecting video, and taking pictures. Why haven’t drones been used for more physical jobs like painting, pressure washing, or for construction?

The problem is that drones today have stability limitations preventing them from doing these jobs. The Skygauge has solved these stability problems by reinventing the drone. Using their new design, Skygauge Robotics aims to perform all types of jobs like painting, sanding, drilling, pressure washing, and attaching a robot arm to perform any type of job. Skygauge aims to perform all manner of dull, dirty, and dangerous jobs in the air. The same way robotic arms revolutionized physical work in factories, The Skygauge will revolutionize work in the skies.

The first application for the Skygauge is conducting industrial inspections requiring contact. Large industrial infrastructure like refineries, offshore platforms, ships, and bridges corrode over time and they need to be inspected regularly. To monitor for corrosion, inspectors contact a sensor to these metal surfaces to measure metal thickness. They detect metal thinning over time and use this information to decide when and where to make repairs. Since these structures are tall, workers currently use ropes or scaffolding to inspect all areas of the structure. Using the Skygauge, inspectors will perform their jobs 5-10x faster, more cost effectively, and safer because workers stay on the ground.

The Skygauge is sold to the inspection teams of industrial facilities or inspection companies. The revenue model is to charge an annual subscription of $45,600 per drone per year. In this subscription customers receive the hardware, maintenance, custom support, and upgrades to the product.

Skygauge has a flying prototype, filed a patent on the design, and started in field tests. The funds will be used to get to a commercial product and an ARR of $1.1 million. During this development the team will expand to 13 employees total. Skygauge will then raise follow on capital to scale the business.
Oplii is an operation management software platform with specific strengths in asset Integrity, preventative maintenance and work order management (CMMS), regulatory compliance, HSE, Management of Change and Reclamation and Remediation (and much more) and we help organizations reduce capital spending and improve operational efficiency by connecting the office and the field through our cloud and mobile platform.

With one of the most innovative and easy to use digital inspection and maintenance solutions available, we help our clients save millions of dollars annually by streamlining internal processes, reducing touchpoints and eliminating paperwork in the field. We help companies improve and speed up their inspections by up to 80% and improve field data capture accuracy by up to 33% by using our innovative digital inspection solution. As a result of this, some of our clients see a ROI of up to 15-18 annually by using Oplii.

Recognised as one of the top 25 Canadian Energy Innovators by Alberta Oil Magazine in 2016 and an alumni of Zone start-ups Calgary (Accelerator backed by GE & Ryerson Futures), Oplii is proud to work with many of the most successful energy companies in North America. Last year, Oplii was selected as one of eight companies to present at the Society of Petroleum Engineer’s Innovation & Entrepreneurship Symposium – Shark Tank event, that was held in Houston in February 2019.
We have developed a fast, accurate, and easy way for anyone to test any water, literally anywhere in the world. Our system currently tests for 27 critical components in just 10 minutes; no chemist or lab required. Some of our upcoming parameters bring new capabilities to operators to further control scale and corrosion (the chief one being sulfate-reducing bacteria). Having a fast and accurate analysis provides the actionable data operators and service companies need, in time to do something about it.

We are commercial and our system has been approved and adopted by Exxon and NalcoChampion, among others. Our technology not only saves our customers time and money by no longer having to ship samples to shore or back to a remote lab, but also because they are able to proactively address scale, corrosion, and chemical compatibility issues. We are currently raising funds to expand our technology across the entire hydrocarbon value chain and across the Globe, as well as continuing our R&D efforts to expand our testing capabilities and develop additional predictive analytics & software around water quality issues.
The Quantum RF* Asphaltene Monitoring system from MicroSilicon Inc has received certification for a series of pressure and temperature cycling tests performed by a global leader in consulting engineering and certified testing services. In particular, the Quantum RF system completed a series of tests of its paramagnetic sensor with fluids at 5ksi at 25C and 3.5ksi at 120C. No other commercial paramagnetic device has been certified for such high-pressure flowing fluids. It is known that crude oil properties change significantly below its asphaltene onset pressure so the higher-pressure rating will allow the device to take measurements closer to that onset pressure.

The Quantum RF sensor takes digital snapshots of the paramagnetic behaviour of molecules as they are conveyed by crude oil flowing through the wellhead or oilfield tubular. It then transmits the chemical data to the cloud where it can be used to optimize treatment for flow assurance problems such as asphaltene, corrosion and scale. Since its launch in 2017, the Quantum RF Asphaltene Monitoring System has completed multiple paid field tests in Canada, USA and Abu Dhabi and operators are already addressing the costs of asphaltene management based on the field data. Previous to this certification, the device had been limited to applications where the fluid pressure was less than 500psi.

“Certification to higher pressures will expand our market,” said Omar Kulbrandstad, CEO of MicroSilicon. “Continuous real-time chemical data is already changing the paradigm for flow assurance, but some customers have been requesting higher pressures to allow measurement of live oils that still contain entrained gas. This milestone takes us closer to being able to provide a real-time chemistry platform on the seabed. In the shorter term, it will make possible operations on offshore platforms in Gulf-of-Mexico where formal pressure certification is a requirement for hardware installation.”

In Q4 2018, MicroSilicon won the Best-in-Show Award at an SPE industry competition to highlight innovative and emerging energy technology companies, and the Quantum RF Asphaltene System was also nominated for World Oil Best Digital Transformation Technology. The system had previously been highlighted for special mention by Abu Dhabi National Oil Company at their RDPETRO conference in May 2018.

For more information on the Quantum RF system, visit [www.microsilicon.io/QuantumRF](http://www.microsilicon.io/QuantumRF).

**About MicroSilicon**

MicroSilicon is the world’s innovation leader for real-time fluid characterization using electromagnetic and quantum chemical technology and for which they won a Rice Alliance Startup Award in 2015. They are now developing a range of flow assurance products and services including corrosion, scale and asphaltene sensing.
VALUE PROPOSITION AND DIFFERENTIATORS

NREL’s partners can generate both cost-competitive renewable fuels at yields greater than 70 gallons per ton of biomass and high-value chemicals and materials from a versatile bio-oil intermediate to meet regulatory mandates and public demand:

- **Greater than 60% reduction** in greenhouse gas emissions compared to petroleum-sourced fuels
- Stabilized, refinery-compatible bio-oil reduces downstream hydrotreating and separations costs
- **Oxygenated products** for novel polymer synthesis
- Woody feedstock **cost decoupled from petroleum**.
Market Considerations: Reduced Volatility and Cost

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Cost reductions through targeted R&D combined with renewable fuel policy incentives* can reduce commercialization risk.

* Renewable Fuel Standard (RFS) and Low Carbon Fuel Standard incentives are market-based and may fluctuate over time.

WE ARE SEEKING STRATEGIC PARTNERSHIPS AND COOPERATIVE RESEARCH AND DEVELOPMENT

- Feedstock suppliers (forest and agriculture) looking to generate additional revenue through bioproducts and biofuels, taking advantage of available RINs
- Farms, orchards, and agricultural entities seeking improved sustainability and profits by converting their waste and residues into bioproducts
- Refiners looking to meet regulatory mandates California Air Resources Board and RFS programs through bio-oil co-processing, and those seeking routes to renewable chemicals
- Airlines in search of renewable jet fuel blendstocks to comply with international policy
- States, cities, and municipalities targeting a versatile platform to commoditize renewable feedstocks
- Catalyst manufacturers and technology providers seeking to expand product offerings into renewable fuels and chemicals markets
- Polymer manufacturers seeking cost-effective renewable feedstocks with potential performance advantages.

CONTACT US to discuss how our technology can address your needs

Joshua Schaidle
303-384-7823, BetterBio-Oil@nrel.gov

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