OVERVIEW

SAIL CAPITAL PARTNERS

SAIL was founded in 2002 as a pioneer in the cleantech investment sector and continues to be one of the sector’s recognized thought leaders. Our comprehensive portfolio currently includes fourteen leading companies spanning the universe of sustainable innovations in the areas of energy storage and efficiency, renewable fuels, electrical efficiency, green cleaning products and water purification.

In this era of profound changes in the way we produce and consume valuable resources, SAIL focuses on exceptional profit opportunities as a result of inefficiencies in the global markets. Our team of uniquely talented investors employs their decades of experience and cleantech-related networks to the most exciting venture investment opportunities.

www.sailcapital.com
Enerpulse was featured in this month’s Engine Technology Newsletter. As the article titled described, “drastically reducing tailpipe emissions at the critical engine start phase is being made possible thanks to Enerpulse’s innovative new combustion process.”

The study explains that with any modern IC engine, the majority of toxic emissions from combustion occur in the first few seconds after cold start. Once the catalytic converter is up to temperature (light-off), the IC engine produces tailpipe emissions that are within regulation standards. Therefore, the primary target for further emissions reduction in automotive IC engines must be during those first few seconds of the cold start phase.

In order to reduce emissions during the cold start phase, these conditions have to be met:
- A more stable combustion,
- which allows for faster/later combustion,
- leading to higher enthalpy in the exhaust in order to heat up the catalyst as quickly as possible,
- all of which means a faster light off during the cold start phase and lower raw engine out emissions.

For the study, a catalyst heating test was used to compare three different spark plugs: a baseline NGK fine wire iridium spark plug, Enerpulse’s PCI plug (DG1p), and Enerpulse’s PCI plug (PT6EIT) with semi-surface gap (SSg) electrode geometry. Each spark plug was tested 64 times.

The results showed that the PCI plugs had both faster combustion reactions and higher combustion stability (COV) than the baseline plug. The burn-rate data in the table below (see Q5, Q50, ad Q90) shows that combustion was achieved faster for both PCI plugs. A COV test showed an improvement of 20.5% for the DG1p and 30.8% for the SSg plug in stability when compared to the baseline plug.

The improved combustion stability demonstrated with PCI plugs (relative to the baseline plug) proves that the engine can be operated to obtain a faster catalyst light-off. A faster light-off will then result in overall lower tailpipe out emissions over any test cycle, especially ones containing cold starts or stop-and-go conditions.

A patented current peaking capacitor embedded in Enerpulse’s PCI plugs is the core technology contributing to the combustion process improvements. The test confirms that Enerpulse’s technology is drastically reducing tailpipe emissions during this critical start phase.

Results from the 64 cycle catalyst heating test
CNS Response, Inc announced on May 10th that it has opened a second site for its PEER Interactive trial at Fort Belvoir Community Hospital in Virginia, one of the Army's largest treatment facilities for active military personnel. Fort Belvoir is the second military site to participate under an approved, 2,000-soldier protocol and Cooperative Research and Development Agreement.

Also this month, CNS was awarded four additional patents for its PEER Interactive technology. Two of the patents relate to the Company’s method of classifying individual patients based on their unique Quantitative EEG (QEEG) responsivity profile. The third patent, issued in Canada, relates to the Company’s method of determining medication efficacy by comparing QEEG data measured before and after medication administration. The fourth patent, issued in Japan, relates to the Company’s method of recommending therapy based upon an individual’s unique QEEG responsivity profile.

PEER Interactive correlates a reliable neurophysiology test (QEEG) with a published physician outcome registry (PEER). A growing body of evidence—75 studies on PEERDossier.com—has demonstrated reduced trial and error prescribing for physicians using QEEG. PEER studies have shown health outcomes that are two times better than treatment as usual.

Mental health is an area in which treatments fail frequently due to the lack of objective, physiological tests to help physicians individualize prescriptions for their patients. In fact, the National Institute of Mental Health (NIMH) recently announced that it will drop the Diagnostic and Statistical Manual (the "DSM"), which is considered "the bible of Psychiatry," because of its poor correlation with treatment outcomes and its lack of scientific validity. According to Tom Insel, MD, Director of NIMH, "The weakness is its lack of validity. Unlike our definitions of ischemic heart disease, lymphoma, or AIDS, the DSM diagnoses are based on a consensus about clusters of clinical symptoms, not any objective laboratory measure."

CNS Response CEO George Carpenter commented, "In light of the need for objective, physiological measures to guide mental health treatment, and our current work with the US military, we will continue to develop, refine and protect our PEER platform."

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<th>Target</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
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<tr>
<td>Renewable Energy</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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The DoD’s annual $20 billion energy budget makes it the biggest single energy consumer in the world. USC 2911 of DoD’s Title 10 Energy Performance Goals requires 25 percent of total military facility energy consumption to come from renewable energy sources by 2025. Additionally, the DoD is required to reduce energy intensity at domestic facilities by three percent annually (relative to a 2003 baseline), culminating in a 30% decrease by 2015.

SAIL portfolio companies are well placed to help the DoD achieve its energy efficiency goals. For example, SNTech was chosen by the Navy to test the use of its motors in land based HVAC systems to reduce energy use. Wyle performed the tests on behalf of the Navy, with positive results. Wyle strongly endorsed SNTech motors, recommending retrofits on bases in 20 states. The Marine Corps also tested the motor for use in forward operation Environmental Control Units.
M2 RENEWABLES and RIDGELINE
SIGN MANAGEMENT AGREEMENT

Ridgeline Energy Services Inc., a technology driven company operating in the wastewater industry, announced a Management Agreement with M2 Renewables ("M2R") of Lake Forest, California, effective May 10th, 2013.

M2R operates on a seven acre industrial wastewater treatment facility located in Fontana, California. In addition, M2R has installed its wastewater treatment technology in some of the largest food processing plants in the United States. M2R also operates sales offices in Kansas City, central to Ridgeline’s Carthage, Missouri facilities. M2R’s technology is centered on a patented MicroScreen process and patented tertiary filtration system that eliminates suspended solids as well liquid contaminates.

A definitive agreement would include all M2R patents and intellectual property. The Management Agreement and a future definitive agreement could be expected to add approximately $5.5MM in annual revenues for this fiscal year alone. Ridgeline’s in-house manufacturing is expected to more than double M2R’s sales margins.

Dennis Danzik, Ridgeline CEO stated, “The addition of the substantial suite of M2R business operations, patents and equipment to Ridgeline is immediately accretive, and completely disruptive to current technology, specifically when it comes to two dated technologies—dissolved air flotation and solids dewatering. The combination of Ridgeline’s micro gas separation technology and M2R’s MicroScreen conserves up to 70% of the energy used in older technologies and substantially reduces the use of water treatment chemicals. M2R joining the Ridgeline Team brings three major components to our Company’s future. First, a great geographic location in Fontana, California that extends our rapidly growing market reach in Southern California. Unlike our build-out challenges at our Santa Fe Springs facility that took months to upgrade, the Fontana facility is a fully functioning water treatment complex that not only treats water for major customers, but also delivers a substantial portion of that water back for industrial reuse. Second is the perfect bolt-on, patented technology that M2R has developed and commercialized. The M2R group brings a new line of products to manufacturing at Ridgeline. Last but not least, is the world class team at M2R and its management had several paths to business objectives. We are very pleased that M2R management chose Ridgeline. It is a very flattering endorsement. One visit to the M2 Renewables website will both educate and impress."

Christopher Rhoades, M2R CEO stated, "I am very excited about the synergies between M2 Renewables and Ridgeline Energy Services. The M2R MicroScreen and Modular Filter Systems will significantly enhance the solids removal process and reduce cost for Ridgeline’s fast-growing industrial waste water and oil and gas business segments. Ridgeline provides us with an improved business model to actually design, build, own and operate our combined technologies at our facilities or the customer’s site. Together, we will provide more value to the industrial customer while expanding Ridgeline’s ability to mine waste water for valuable materials to be converted to fuel and other energy products at the Ridgeline plants. Further, Ridgeline’s manufacturing capabilities will allow us to significantly reduce costs, which will drive margin expansion and market share opportunities."
The New York Times recently featured an article on India’s dire drinking water shortage. As WaterHealth International strives to ameliorate poor drinking water conditions, it is important to highlight the vast need for clean water infrastructure throughout the country.

Every year, about 600,000 Indian children die because of diarrhea or pneumonia, often caused by toxic water and poor hygiene, according to Unicef. Half of the water supply in rural areas, where 70 percent of India’s population lives, is routinely contaminated with toxic bacteria. Employment in manufacturing in India has declined in recent years, and a prime reason may be the difficulty companies face in getting water.

And India’s water problems are likely to worsen. A report that McKinsey & Company helped to write predicted that India would need to double its water-generation capacity by the year 2030 to meet the demands of its surging population. A separate analysis concluded that groundwater supplies in many of India’s cities—including Delhi, Mumbai, Hyderabad and Chennai—are declining at such a rapid rate that they may run dry within a few years.

The country’s struggle to provide water security to the 2.6 million residents of Meghalaya, blessed with more rain than almost any other place in the world, shows that the problems are not all environmental.

Even in India’s great cities, water problems are endemic, in part because system maintenance is nearly nonexistent. Water plants in New Delhi, for instance, generate far more water per customer than many cities in Europe, but taps in the city operate on average just three hours a day because 30 - 70 percent of the water is lost to leaky pipes and theft.

WaterHealth International offers an immediately deployable strategy for providing healthy drinking water in underserved communities. Its game-changing strategy combines the use of decentralized purification centers in partnership with local communities to create a scalable and sustainable solution for processing healthy drinking water. Using off-the-shelf technologies (including UV light disinfection), the market-tested WaterHealth Centers efficiently purify any available local water source to exceed WHO-quality drinking water standards. Because of WaterHealth, over 5 million people now have access to clean drinking water.

Some WaterHealth International Centers in India. Visit waterhealth.com for full interactive map.
UPDATE on AUSTRALIA

A record 13.14 percent of Australia’s electricity was supplied by renewable energy in 2012, according to new figures released this month by the Clean Energy Council.

In his speech to the Clean Energy Council’s CEO Forum, Australian Energy Minister Gary Grey stressed the Government’s commitment to changing energy use beyond carbon pricing to include support for the development of renewable energy technologies.

In order to increase investment in the research and development of innovative new low emissions technologies, the Australian Renewable Energy Agency (ARENA) was created last year.

ARENA administers over $3 billion in funding to develop the clean technologies needed to achieve deeper cuts in emissions in the future.

At present, ARENA is managing $1 billion of investment across 96 contracted grant projects and 81 skills-based projects. It is at the forefront of emerging renewable energy technology development.

As part of its commitment to encouraging the distribution of renewable energy technology around the country, ARENA will soon be launching its Regional Australia’s Renewables and the SHARE (Sharing High-value Australian Renewable Energy) Knowledge initiative.

These initiatives will supplement ARENA’s current programs, such as the Emerging Renewables Program, the Southern Cross Venture Capital Fund, and ARENA’s ongoing support for both large and small scale solar innovations.

To complement ARENA’s work, the Clean Energy Finance Corporation (CEFC) has a mandate to invest $10 billion in renewable energy, low pollution and energy efficiency technologies.

Commencing on July 1st 2013, the CEFC will provide capital through a commercial filter to help promising clean energy and energy efficiency projects get the financial backing they need.

During the recent trip to Australia by Alan Gotcher, Walter Schindler and Bronwyn Jones, the team met with government officials to discuss significant expansion opportunities for Xtreme Power in the Australian market. Xtreme Power could be a key player in stabilizing the integration of renewables across Australia’s grids as the country strives for 22% renewables by 2020 and 51% by 2050.
ABOUT

SAIL Capital Partners (www.sailcapital.com) is a leading cleantech investment firm with a global vision of technologies, markets and opportunities. We invest in cleantech companies with proven technologies, visionary leadership, measurable impact and exciting growth potential. We have invested in a number of today’s leading cleantech companies including Xtreme Power, Ice Energy, The Cleantech Group, Enerpulse, SNTech, Flex Power, Paragon Airheater Technologies, M2 Renewables, Clean Technology Solutions, CNS Response and WaterHealth International. SAIL has offices in California, Toronto, New Orleans and Washington D.C. as well as a global network of investors and advisors.

DISCLAIMER

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SOURCES

Engine Technology International
Wall Street Journal
Yahoo! Finance
Department of Defense Annual Energy Management Report
PR Newswire
New York Times
Australian Government Minister for Resources and Energy