

Spinning technology into “Gold”

BY MARK INGEBRETSSEN

TECHNOLOGY TRANSFER PROFESSIONALS CALL IT “THE VALLEY OF DEATH,” the arduous, expensive path companies must follow in order to turn research-lab intellectual property into viable products.

“We do the basic research here at the Lab, and it’s normally workbench scale,” says Ames Laboratory Associate Director Deb Covey. “Companies must take it from there, and typically, the majority of them never make it through the valley.”

That may be true, overall. But an impressive number of companies spawned by Ames Lab technology have beaten the odds. Their success has enabled Ames Lab to earn more in licensing fees than any other Department of Energy facility, even though the Lab is smallest among its counterparts.

Spinoff companies using Ames Laboratory technology have also helped build a high-tech infrastructure destined to renew Iowa’s economy as the recession ends. Moreover, the technologies being commercialized by Lab spin-off companies are invariably green, providing new ways to preserve the planet.

A good example is Catilin Corp. The 20-employee Nevada, Iowa, company promises to revolutionize how biodiesel is refined. Catilin produces catalysts developed by Ames Lab researcher Victor Lin and his team. Lin’s catalysts, which Catilin sells to biodiesel

refining operations worldwide, can create fuel using any number of substances. Importantly, the catalysts do their work without using precious water resources,

which could make them a godsend to the world’s poorer, water-deprived nations.

Larry Lenhart, Catilin’s CEO, was instrumental in launching the company. Lenhart serves as executive in residence at Mohr Davidow Ventures, a Silicon Valley venture-capital firm with roughly one-third of its portfolio in green tech.

“We saw Victor Lin at a conference,” Lenhart says, “and we were very impressed both with his knowledge of the technology and his business sense.”

Seizing the opportunity, Lenhart and his MDV colleagues worked with the Iowa State University Research Foundation, which manages tech transfer for Ames Laboratory. An agreement emerged two months later, and Catilin launched, backed by a combination of public and private funds. MDV is currently working with Catilin on another Ames Lab innovation: specially engineered nanoparticles that can produce biofuels from algae. The process could reduce the renewable fuel’s production costs – a lot. Ten thousand gallons of biofuels can be made from algae grown on a single acre. (See story on page 8)

The biggest Ames Laboratory technology-transfer success story, lead-free solder, is also a green solution to a pressing environmental concern. Created by Ames Lab scientist Iver Anderson, lead-free solder was developed to reduce the potential hazards created by the millions of electronic gadgets tossed



Catilin employees at the company’s facility in Nevada, Iowa.

in landfills. Lead found inside this electronic waste can leech out and poison ground-water supplies. Restrictions on lead content in electronic components in the European Union and elsewhere have helped make the Ames Lab alloy the biggest royalty generator of any invention commercialized by a DOE lab. Today it’s licensed by more than 60 companies worldwide.

Recently, an Iowa firm, New Tech Ceramics, licensed Ames Lab-developed nano-coatings, nicknamed BAM and developed by Ames Laboratory scientist Bruce Cook and his team, that reduce friction in pumps and other devices where water is present. The coatings might someday cut U.S. energy use by \$179 million annually. (See story on page 12)

Though companies like New Tech and Catilin have already found ripe opportunities in Ames Laboratory technologies, plenty of leading-edge intellectual property remains, says Covey. That is, if the acquiring company is willing to risk traversing the Valley of Death.

One example: a paradigm-shifting incandescent bulb that reflects heat energy back to the filament. Although not yet prototyped, Ames Lab associate Kristen Constant and her colleagues have calculated that the bulb would be more efficient than currently popular, energy-saving fluorescent and LED lights, while retaining an incandescent bulb’s pleasing glow. Any takers?



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Newtech Ceramics