

STARTUP

New grant, innovation pump it up

COMPANY: ThermoLift

LOCATION: Stony Brook

FOUNDED: April 2012

FOUNDER(S): Paul Schwartz,
Peter Hofbauer

EMPLOYEES: 4 full-time

PRODUCT: Natural-gas-powered AC/heat
pump

LAUNCH INVESTMENT: \$75,000, for officer
salaries, patent applications, travel ex-
penses and preliminary design

FUNDING SOURCES: Angel investment

MAJOR CHALLENGES: "Getting people to
understand the thermodynamics of the
technology," says CEO Schwartz.

PRODUCT STATUS: Design and simulation,
with demonstrator due 2014

Paul Schwartz met lots of people during 20 years on Wall Street, where he specialized in matching investors with emerging growth companies with market caps below \$20 million.

It was a nice niche; Schwartz was considered a pro with the inside scoop, and he made plenty of connections.

One was Peter Hofbauer, the former head of engine and power-train development for Volkswagen and "the grandfather of diesel engines in passenger cars," according to Schwartz.

They met about 15 years ago, while Schwartz was on a brief detour from his finance career, directing new-business development for a California-based automotive technology company. Soon the fast friends were discussing a specialized heat pump Hofbauer had developed years earlier for a joint venture by Robert Bosch GmbH, the German engineering and electronics firm, and Viessman, the German heating-systems manufacturer.

Some of the patents on the original machine were in Hofbauer's name, Schwartz said, and others were either lapsed or abandoned.

They sensed a business opportunity. Hofbauer convinced Schwartz – who had returned to Wall Street – to quit high-finance for good and devote himself to a startup that would bring the next-generation heat pump to market.

They officially launched ThermoLift in

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ThermoLift: Dept of Energy on board

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April 2012, and have already filed six new patent applications, including one international patent and five in the United States.

The combination heat pump/HVAC unit being developed now is not identical to the device Hofbauer invented in Germany. With an initial VC seed of \$75,000 and a subsequent \$1.6 million bump from the Long Island Angel Network, ThermoLift has invested heavily in "functionality and tunability," Schwartz said, incorporating a mechatronic system that combines mechanics and cutting-edge electronics.

Now ThermoLift, a resident of Stony Brook University's Advanced Energy Research and Technology Center, has been further emboldened by a \$750,000 grant from the U.S. Department of Energy, which the startup will use to develop and test prototypes.

"It's all mechanical engineering, thermodynamical analysis and electrochemical engineering," Schwartz said. "And that means simulations and building and testing unique components and integrating them into the pump."

In a world where alternative energy, including windmills and solar-powered photovoltaics, is commonly more expensive than conventional technologies, ThermoLift's ultimate goals are as economical as they are environmental.

Schwartz envisions a single unit that heats, cools and provides hot water for a residence, fueled by natural gas and costing about \$5,000 – a cost-effective alternative to "three separate systems that can range to \$8,500 for a single house," he said.

"We want to be the lowest-acquisition-cost technology and we want to have the lowest operating cost," Schwartz said. "We want it to be a no-brainer for the consumer to decide to buy our technology. We want to become the new global HVAC standard."

ThermoLift faces several trials between here and there. There are the expected challenges of performance criteria and cost, and with energy efficiency becoming a top global priority, there are "big gorillas out there, like United Technologies, pursuing similar alternatives to conventional technologies," he said.

But the firm's relationship with Stony Brook University is key, Schwartz added, and availing ThermoLift of the school's engineering resources was always a top priority.

"I've built fantastic relationships with the Mechanical Engineering Department," Schwartz said. "This company was born on Long Island and it's going to stay on Long Island. I may use re-



PAUL SCHWARTZ: The heat is on at ThermoLift.

sources around the globe, but the core of the company will always stay here."

With ThermoLift deep into R&D and aiming to produce a fully functioning demonstrator model by early 2014, the race against major-league competitors isn't especially concerning either, Schwartz added.

"Innovation is typically difficult in large corporate structures," he said. "Google and Facebook didn't come out of IBM. Look at Tesla – it didn't come out of General Motors.

"We've built a consortium within critical areas," Schwartz noted. "When we're ready, we won't have to fight City Hall to get to the Department of Energy. They'll be our biggest champion. And that's going to lead to partnerships and a very early commercialization adoption rate, I hope."

– Gregory Zeller