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Albuquerque startup lands $900K Department of Energy award for its solar tech

Charmaine Tunell is the president and CEO of Guardian Devices, an Albuquerque company that spun out from Management Sciences Inc., a separate Albuquerque company, in August 2022.

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By Jacob Maranda - New Mexico Inno Reporter

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Solar power has been touted as a path to transition to renewable energy. But the photovoltaic (PV) cells that are used in most solar farms to harness the sun's energy for electricity can erode over time and, sometimes, catch fire.

An Albuquerque solar tech company, which spun out as its own entity last fall, is working on a technology to make those photovoltaic systems more resilient — and it recently landed a big chunk of federal money to propel that tech.

The technology behind Guardian Devices was originally formed around a decade ago when the solar tech startup was still a part of Albuquerque-based Management Sciences Inc. But in August 2022, two people from that company — Charmaine Tunell and Kenneth Blemel, the technology's creator — decided to take the photovoltaic technology and start their own firm. Now, Tunell leads Guardian Devices as its president and CEO, and Blemel is the startup's chief technology officer.

The patented, PV connector device, called Solar Guardian, is used to help prevent electrical fires in solar modules by detecting and shutting off solar panels, connectors or cables to keep fires from spreading, Blemel told Albuquerque Business First.

A single solar array could use about two dozen of the connector devices, he added.

"Our connector is, in a sense, replacing other connectors that have had problems through the industry," Blemel said. "There have been some connectors that have degraded or have been installed together wrong or as misfits and they've caught fire and burned down buildings."

Kenneth Blemel is the chief technology officer for Guardian Devices.
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When the technology was still housed with Management Sciences, it was picked as a finalist for the Department of Energy's American-Made Solar Prize competition. And last month, the Department of Energy awarded Guardian Devices $900,000 for support in developing the Solar Guardian technology.

The startup is negotiating with the Department of Energy to determine how Guardian Devices plans to use the money to help develop its technology, Blemel said. Right now, the startup only has device prototypes for testing, but he said the company eventually wants to license the technology to original equipment manufacturers to build the devices.

"They work with you to make sure your scope is in line, that your budget makes sense, that everything's going to play out and that money from the taxpayers is not going to be wasted," he said about the Department of Energy's recent funding award. "They're not just giving you money and then setting you off to fail. They want a successful project."

That award pairs the $900,000 in federal money with a $225,000 cost share from business partners, which, for Guardian Devices, include organizations like Sandia National Laboratories, Albuquerque-based manufacturing firm Vamco and Canadian-based solar company Emera Technologies, Blemel said.

Alongside the federal money, the state of New Mexico also provided Guardian Devices with a $25,000 science and technology startup grant earlier this year.

All of this new funding would back more prototype testing to prepare the Solar Guardian devices for the market, which Blemel said could come in the next two to three years.

Some of the money could also help the startup hire a mechanical engineer to work alongside Blemel and Tunell, the only two employees at the startup so far. Guardian Devices wants to hire that person this summer to help the startup redesign the prototype to meet Underwriter Laboratories' listing requirements — the first step to actually manufacturing the devices, Tunell said.

Further down the road, he said, the company could explore different markets besides the solar industry.

"We believe that we're not hardwired into just the photovoltaic industry," Blemel said. "We can expand and grow and then move the technology into other ... marketplaces.

"We believe we have something here that's new and innovate that we can build a long-term business out of."

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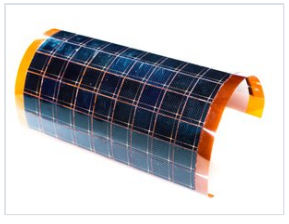

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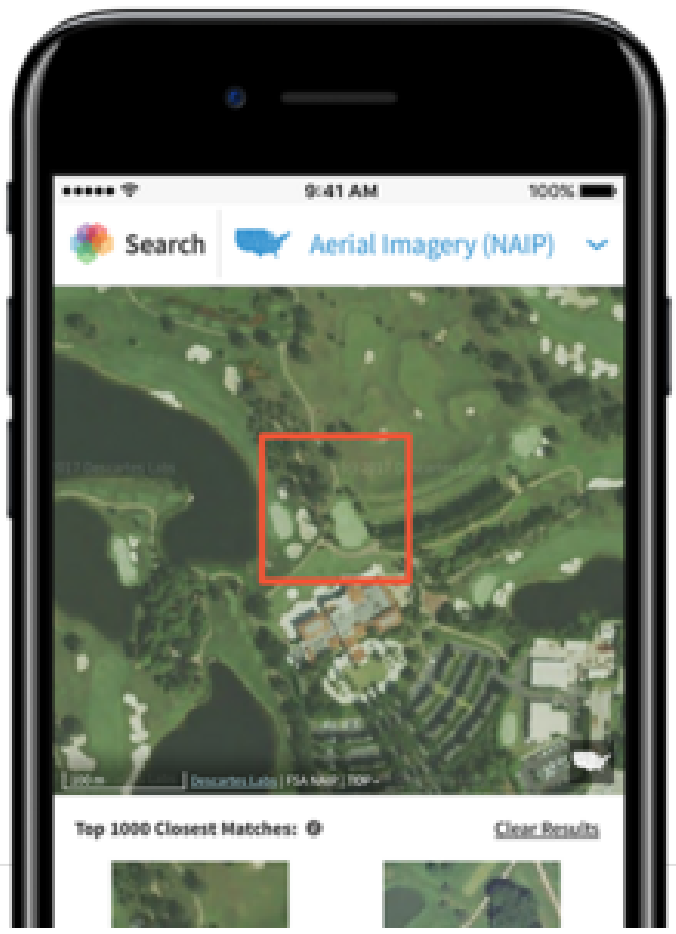

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