Applied Quantum Technology Raising $20M Series B Round
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Applied Quantum Technology, or AQT, a start-up developer of thin-film solar cells, is raising a $20 million Series B round, its founders told VentureWire.

The Santa Clara, Calif.-based company modified hard disc drive equipment to make copper-indium-gallium-diselenide, or CIGS, solar cells, in a way that makes production much cheaper than developing entirely new tools, said Michael Bartholomeusz, chief executive, in an interview. The company hopes that its thin-film cells could serve as "drop in replacements" for crystalline silicon cells by solar panel manufacturers.

The company already produces samples of its cells that were validated by the National Renewable Energy Laboratory to have 10% efficiency, according to AQT. Its current samples are closer to 12% efficiency, and next year it hopes to start making cells on a pilot line that would have 14% efficiency. The efficiency will be about 2% lower once the cells are integrated into modules. The company was founded in 2007 and backed by about $5 million from STPV Holdings, an East Coast investment house, according to the CEO. AQT is currently raising funding to build the first 15 megawatts of production capacity, said Bartholomeusz.

"We are expecting closing between December and February, and are currently evaluating a range of [investor] syndicates," he said. The equity investment will come from venture, strategic and regional government backers, he said. Several locales where the company might build its plant are interested in investing in the company directly, said the CEO.

"Many economic councils are able to bring debt and equity," he said, adding that the regional councils have connections with local investors, and are able raise bonds for the debt portion of a deal.

Many venture investors retreated from backing new solar technology, as the recession hit, risk appetite decreased, and the cost of standard solar technologies dropped - making it even harder to compete for new technologies. But Bartholomeusz said that both investors and potential customers are proving receptive to the product. He said that the current offers from investors run a "large range of valuations," depending on the type of venture investor involved.

Part of the reason is that the company doesn't expect to need hundreds of millions to get to commercial scale. Bartholomeusz said the company will need to raise about $20 million more in a subsequent round to expand.

Its goal is to build up to 1 gigawatt of production capacity by 2014, said Bartholomeusz. Part of that will be fed into modules made by customers, and part will be used for the

company's own modules that it would make through outsourcing agreements, its co-founders said.

The company's current samples are four-inch round cells. Using commercial-scale equipment the company would be making six-inch square cells. But Bartholomeusz said that the company already validated its production tool, so even though it has yet to see whether it will be able to produce the same quality of product at large scale, it's fairly close to that goal because it's using tools that have been tested.

Module manufacturers wouldn't be able to simply take the cells and plug them in on their production line. AQT's customers would have to make some adjustments, said Michael Bartholomeusz's brother Brian, who's also a co-founder of the company. AQT's cells are slightly thicker than standard crystalline silicon cells, they require a moisture barrier, and adjustments must be made to the encapsulants in the solar module.

But the cost of the cell would make the effort worthwhile, according to the CEO. The modules using AQT's cells could be "well below $1 per watt" at commercial scale, said Michael Bartholomeusz. First Solar Inc., by comparison, made its thin film solar panels for 85 cents per watt in the second quarter.

AQT is in "in depth discussions with several module manufacturers," said Michael Bartholomeusz. It also is working with partners on a project in Latin America where its product would be installed.

Brian previously worked at Eastman Kodak Co. and Moser Baer India Ltd., a large hard disc drive and thin-film solar manufacturer. Both brothers have advanced degrees in materials engineering. The third co-founder of the company is Mariana Munteanu, who's the company's chief technology officer.