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AQT Paving the way to Grid Parity

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—MICHAEL BARTHOLOMEUSZ, CEO, APPLIED QUANTUM TECHNOLOGY

Applied Quantum Technology (AQT) is one of the leading companies developing efficient processes for manufacturing high-performance, low-cost thin-film solar cells. Towards the close of the year, InterPV Editor Sarah Jeong had an interview with Michael Bartholomeusz, CEO of Applied Quantum Technology, on the company's innovative technologies and the future prospect of the solar industry.

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An AQT employee with horizontal solar panel



Please briefly introduce your company to our readers.

Applied Quantum Technology (AQT) has developed the most capital-efficient process for manufacturing high-performance, low-cost thin-film solar cells. AQT's mission is to achieve the highest cost/performance ratio of any solar cell manufacturer. The company's high capital utilization efficiency and highly scalable manufacturing process will lead to the highest watt-output per dollar invested and rapidly realize grid parity. With full scale production planned for 2010, AQT will generate hundreds of green collar solar manufacturing jobs.

What is your area of focus?

Thin film. AQT plans to manufacture solar cells that are drop-in replacements for conventional crystalline silicon cells.

Describe your technology, material, product or service. What is it?

AQT's patented and proprietary technology is based on the production of CIGS-type thin-film photovoltaic cells using the reactive sputtering process. Sputtering is the proven standard for producing other high volume cost-sensitive high-tech prod-

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ucts such as hard disks and optical discs. This innovative approach includes single-step deposition, nano-engineering, device-enhancing source materials, and simplified cell interconnect design. AQT will opportunistically leverage existing global manufacturing resources and infrastructure to minimize time-to-market and maximize capacity expansion.

What makes it unique?

AQT will employ a leverage-based business model, built on proven manufacturing platforms, and established scalable industrial thin-film deposition processes.

Why is it needed?

The rebound and subsequent growth of the photovoltaic segment is critically dependent on cell technologies, like AQT's, that are scalable, have aggressive cost reduction potential, and permit continuous technology advancement. Cost is king.

How will it benefit the PV industry and end user?

AQT will benefit the PV industry and end user by providing a clear pathway to grid parity and beyond.

What is the timeline on your offering?

AQT is embarking on pilot production (15 MW). The first customer LOI (for a 2 MW installation) using our cells is in place. This will be a controlled test installation for product testing and validation.

Where will you be focusing in the future?

AQT intends to focus on cost reduction and performance enhancement via nano-engineering. We also will be working with partners on innovative module designs.

Can you expand a bit more on your technology? How is it different from your competitors'?

The fundamental difference between our technology approach and those of many of our competitors is that we have ported a process over to a proven manufacturing platform instead of having to design and build customized equipment. This results in tremendous cost savings and leverages an enormous investment and a global experience and expertise base that has been built up over decades. The manufacturing process itself closely resembles those used in other high-tech, high-volume cost-sensitive segments. It is AQT's intention to leverage that huge resource and experience base as well.

Which aspect of your production process is the most important?

The highly controlled deposition of the absorber and buffer layers—the heart of the PV device.

Who do you foresee as being your major customers?

All established global players who currently purchase conventional crystalline silicon solar cells and turn them into modules.

What are going to be the most challenging aspects of manufacturing solar cells and how do you plan to overcome them?

The most challenging aspect will be to maintain product quality, performance and lifetime in the face of aggressive cost reductions. We plan to work closely with our technology partners and suppliers to pool our resources and efforts to ensure that we meet our customers' requirements.

What are your goals for 2010?

Our goal for 2010 is to install a 15 MW pilot production system, and go to market.

How do you evaluate this year's achievement?

We have met all our goals and objectives.

Please forecast the solar industry in the next 5 years.

The United States, China and India represent the next major growth opportunity for the PV market. Each region is likely to have somewhat different product and application requirements. For PV manufacturers, particularly those commercializing new technologies, the critical success factors will remain: scalability, aggressive cost reduction potential, and continuous technology advancement. Thin-film PV, specifically, could see very dramatic market growth which could amount to 10-fold in the next 5 years. **W**

Sarah Jeong is Editor of InterPV. Send your comments to pv@infoq.com.