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Silicon wafer vendors see new dynamics

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SAN JOSE, Calif. -- Silicon wafer vendors are under pressure from current demand and the new dynamics in the solar-cell industry, according to Semico Research Corp.

In total, silicon wafer demand for semiconductor production is expected to grow at a compounded annual growth rate of 13 percent over the next five years, according to Semico Research (Phoenix).

"For the past several years semiconductor silicon wafer manufacturers have been struggling due to the large investments that were required while installing new capacity for 300-mm wafers and from the increased pressures of semiconductor manufacturers to decrease costs," according to the research firm.

"Today, the photovoltaic industry is competing for silicon wafers alongside the semiconductor industry," according to the firm. This is especially true for polysilicon, the key material used in solar cells and silicon wafers.

"Most major silicon wafer suppliers were not focused on the photovoltaic market. Silicon wafers used for solar applications do not have the same stringent requirements for flatness and consistency that a semiconductor wafer requires," said Joanne Itow, managing director and manufacturing analyst for Semico.

"When the demand for solar wafers was small, wafer manufacturers were able to sell the lower quality pieces at essentially scrap wafer prices to the solar industry," she said. "However, as solar cell demand increased, the wafer manufacturers had to step up production that was actually targeted at solar panel manufacturers."

Another market dynamic is the fact that although a semiconductor wafer sells for a much higher price than a solar wafer, the silicon wafer amounts to a very small percent of the total cost of a semiconductor chip, according to Semico.

"However, the silicon wafer is approaching one half of the total cost of a solar cell. Therefore a 5 percent increase in a semiconductor wafer has much less impact on the semiconductor manufacturer than a 5 percent increase in a solar grade wafer to a solar panel manufacturer, according to Semico.

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The advertisement features a blue background with a white wave pattern. On the left is an IGLOO M1 FPGA chip. In the center, four surfers are riding waves. On the right, a hand holds a mobile phone displaying a surfer. The text reads: 'ARM-enabled M1 IGLOO™ FPGAs Portables everywhere just got a lot cooler.' The Actel logo and 'POWER MATTERS' are in the top right, and a 'Learn More' link is at the bottom right.