

IBM and Tokyo Ohka Kogyo Turn Up Watts on Solar Energy Production *Companies Aim to Make Solar Energy Affordable and Easy to Use*

June 16, 2008, Yorktown Heights, NY -- Tokyo Ohka Kogyo Co., Ltd. (TOK) and IBM (NYSE: IBM) are collaborating to establish new, low-cost methods for bringing the next generation of solar energy products to market -- products that will be more affordable and easier to install than those available today.

Specifically, TOK and IBM have agreed to jointly develop processes, materials, and equipment suitable for the production of CIGS (Copper-Indium-Gallium-Selenide) solar cell modules. Currently, the relatively high-cost of electricity produced by solar cells compared to electricity from other energy sources is an inhibitor to a more widespread adoption of solar energy. Use of thin film technology, such as CIGS, has great promise in reducing the overall cost of solar cells and further enabling their widespread adoption.

IBM Research has developed new, non-vacuum, solution-based manufacturing processes for CIGS solar cells and is targeting efficiencies around 15% and higher. Current thin film product efficiencies vary from around 6% to less than 12%. Combining IBM's technology with the proven coating technique and high purity chemicals of TOK -- built upon years of experience manufacturing semiconductors and LCD panels -- has the potential to bring the large scale production of thin-film solar cells to market.

"Our goal is to develop more efficient photovoltaic structures that would reduce the cost, minimize the complexity, and improve the flexibility of producing solar electric power," said Dr. Tze-Chiang Chen, IBM Vice President of Science and Technology, IBM Research. "Now, IBM's advanced technology combined with TOK's expertise in equipment design and manufacture, have the potential to broaden the use of alternative energy sources."

Yoichi Nakamura, President & Chief Executive Officer, TOK said, "We believe that this joint development is a great opportunity to expand the applications of our technologies into the photovoltaic industry, bringing a new solid business block for us."

Despite the abundance of solar power, current solar cell systems, which largely rely on silicon for their conversion function, are comparatively less efficient and more expensive than other energy sources. Thin-film CIGS solar cells can be 100x thinner than silicon-wafer cells, can be deposited on cheap glass substrates, and thus have correspondingly lower cost.

Thin-film solar cells also have the advantage that they could be arranged on a flexible backing, suitable for the tops and sides of buildings, tinted windows, and other surfaces. Solution processing allows “printing” onto a rolled backing of a flexible module, or a glass plate, eliminating many of the high energy and equipment intensive processes that are typical in conventional photovoltaics manufacturing.

IBM Research is exploring four main areas of photovoltaic research: using current technologies to develop cheaper and more efficient silicon solar cells, developing new solution-processed thin-film photovoltaic devices, concentrator photovoltaics, and future generation photovoltaic architectures based upon nanostructures such as semiconductor quantum dots and nanowires.

In addition to the photovoltaic research announced today, IBM is focused on several areas related to energy and the environment, including energy efficient technology and services, carbon management, advanced water management, intelligent utility networks and intelligent transportation systems. With decades of leadership in environmental stewardship, proven ability to solve complex challenges and unparalleled global reach, TOK and IBM is uniquely positioned to increase the efficiency of today’s systems and enable our clients’ “green” strategies.

About Tokyo Ohka Kogyo Co., Ltd. (www.tok.co.jp)

Since 1940, TOK is a world’s leading supplier of photoresists for semiconductor, flat panel display, printed wiring board and packaging. Moreover, TOK supplies other photolithography materials, processing equipment for semiconductor and LCD manufacturing, printing materials and inorganic/ organic high purity chemicals.

ABOUT IBM

For more information, please visit www.ibm.com/green.

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