



Konarka Gets \$20M More for Organic Solar Cells

\$150 million raised—so far—in a decade-long quest for low-efficiency, niche-market solar cells.

[Eric Wesoff](#)

March 3, 2010

Whatever else one can say about organic solar cell aspirant [Konarka](#), the startup sure is great at raising money.

Konarka just announced \$20 million in strategic investment from Japan's [Konica Minolta](#). That brings Konarka's total to more than \$150M in angel funding, venture capital, strategic investment and private equity money raised since 2001. And throw in at least \$10 million more in DARPA, DOE, NSF, U.S. Army, bank loans and credit lines in the last ten years.

The latest investor to grace that long list, Konica Minolta, is in the OLED business, which might provide some synergy with Konarka's roll-to-roll technology -- they hope.

Konarka is headquartered in Lowell, Mass., and has a manufacturing facility in New Bedford, Mass., with European headquarters in Nurnberg, Germany, business development offices in Asia, and a research and development facility in Austria. That sounds like a healthy burn rate. Konarka was founded in 2001 by scientists at UMass Lowell and has received investment from Chevron, Good Energies, Draper Fisher Jurvetson, the Massachusetts Green Energy Fund, Vanguard Ventures, Mackenzie Financial, Partech, and many more.

I have spoken to a few of those early investors about their investment in Konarka. One comment, off-the-record, was unprintable; another comment, made anonymously, was that the investor had no idea at the time of investment that First Solar would hit the numbers on cost and efficiency that they have. This anonymous commenter also added that Konarka was in a sort of [limbo of commercial production](#) capability but no production demand -- in essence, that their low efficiency nets out in no incentive for mainstream market adoption.

Low efficiency and difficulty in achieving long lifetimes leave OSCs to go after niche markets like consumer wearables and luggage. The ten-year-old startup has also mentioned tents, awnings and BIPV as possible end-markets. These applications could result in real business, but it seems difficult to get to serious megawattage -- and difficult to justify as a [VC-funded firm](#).

Next generation solar cell developers include Konarka and [Plextronics](#) in the organic photovoltaics field, and Dyesol, EPFL, G24i, Mitsubishi and Peccell on the dye-sensitized-cells

front.

OSCs remain a compelling technology. One of the appeals of third-generation thin-film solar cells is that they can be manufactured using solution-based, low-temperature roll-to-roll manufacturing methods, which use conventional printing techniques on flexible substrates. That is the [sirens'](#) call that keeps the VC money flowing.

Our analyst team at GTM Research has written [a report and forecast on "third-generation" solar](#), which includes this comparison of dye-sensitized cell technology versus organic solar cell technology:

	DSC BENEFITS	OPV BENEFITS
Current Cell Efficiency	High efficiency – single junction cells >12 percent efficiency, and tandem cells >12 percent efficiency using liquid BHJ design.	Lower efficiency – single layer about 6 percent efficiency, and 6.4 percent efficiency for tandem BHJ design.
Manufacturing Costs	Offers the lowest cost of all printed solar cells and short energy payback time of <1 year.	Low cost fabrication for large area devices.
Main Benefits	Non-silicon based technology – sheltered from silicon supply and pricing issues. Lightweight, flexible, transparent and coloring options. Maintain efficiency even in low light levels – indoors and outdoors. Enable R2R and standard printing. Uniform output over a large range of light levels – especially early morning, late afternoons and cloudy skies. Commercially available during 2009 from G24 Innovations for low power small applications and later for large area roofing applications from the Corus Group and Pecell Technologies.	Non-silicon based technology – sheltered from silicon supply and pricing issues. Lightweight, flexible and tunable. Maintain efficiency even in low light levels – indoors and outdoors. Enable R2R and fast standard printing. Enabler for applications where mechanical flexibility and disposability are valued.
Main Disadvantages	Degradation under heat and UV light, cell casing is difficult to seal due to solvents, corrosion.	Commercially only available in 2010 from 3G Solar, Konarka Technologies, Plextronics and Solarmer. Material instability over the long term, making it unsuitable for roofing applications.
Future Developments	Printable on very large areas. Stability >15 years. Efficiencies up to 16 percent for tandem cells and multi-junction devices will offer efficiencies up to 30 percent. Solid flexible DSCs.	Printable on large areas. Stability for 10 to 20 years. 10 percent efficiency with single junction, and up to 20 percent with multiple junctions.



My VCs gave me \$150 million and all I got was this Sunbag.

<http://www.greentechmedia.com/articles/read/konarka-gets-20m-more-for-organic-solar-cells>