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## A 'clear path' to solar power

Engineers are designing new transparent solar panels that could be retrofit to existing glass-covered buildings

Solar cells integrated into new construction, particularly skyscrapers, are an enticing energy option. However, this effort can be hampered by the cost and architectural considerations sometimes needed to mount traditional photovoltaic (PV) cells.

What if engineers could make it easier with a lightweight, clear and flexible solar cell? Traditional solar panels, such as silicon, soak up much of the sun's light, including visible light, and convert it to energy. A transparent panel allows visible light to shine through, by making the light we can't see with our eyes--such as ultraviolet and infrared--do the work.

With support from the National Science Foundation (NSF), Michigan State University materials scientist and chemical engineer Richard Lunt and his team are developing transparent solar panels that could be retrofit to cover existing windows instead of replacing them. With the square footage of glass that's on skyscrapers and other buildings, the tremendous potential for energy and cost savings is clear!

The research in this episode was supported by NSF Faculty Early Career Development (CAREER) award [#1254662 \(/awardsearch/showAward?AWD\\_ID=1254662&HistoricalAwards=false\)](#), Optical and Nanostructural Control of Visibly Transparent Small-Bandgap Excitonic Semiconductors for Integration in Highly-Efficient Transparent Photovoltaics.

[Miles O'Brien \(producers/obrien.jsp\)](#), Science Nation Correspondent

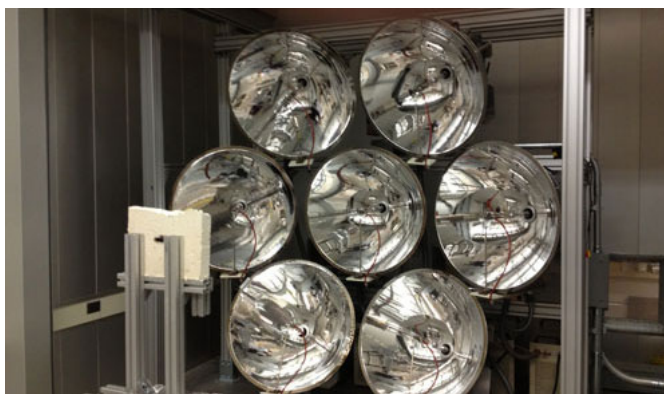
[Ann Kellan \(producers/kellan.jsp\)](#), Science Nation Producer

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Modern society is very much defined by its access to electricity. What if researchers could advance sustainable energy technologies to the point where everyone around the world had access to clean, cheap energy sources? Richard Smalley, 1996 Nobel Prize winning chemist, called it the greatest challenge facing the world in the 21st century and coined the phrase 'terawatt challenge'. Find out more in this [Science Nation video \(/news/special\\_reports/science\\_nation/terawattchallenge.jsp\)](#).

*Credit: Science Nation, National Science Foundation*



More energy from our sun hits the Earth in one hour than is consumed on the planet in a whole year! But, the burning question is--how can we put all that sunshine to work making usable fuel? California Institute of Technology (Caltech) chemical engineer Sossina Haile and University of Minnesota mechanical engineer Jane Davidson are working to expand the nation's renewable energy storage capacity. Find out more in this [Science Nation video \(/news/special\\_reports/science\\_nation/solarpower.jsp\)](#).

*Credit: Science Nation, National Science Foundation*

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### **[A new material for solar panels could make them cheaper, more efficient \(/news/news\\_summ.jsp?cntn\\_id=129946\)](#)**

A unique solar panel design made with a new ceramic material points the way to potentially providing sustainable power cheaper, more efficiently and requiring less manufacturing time.



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