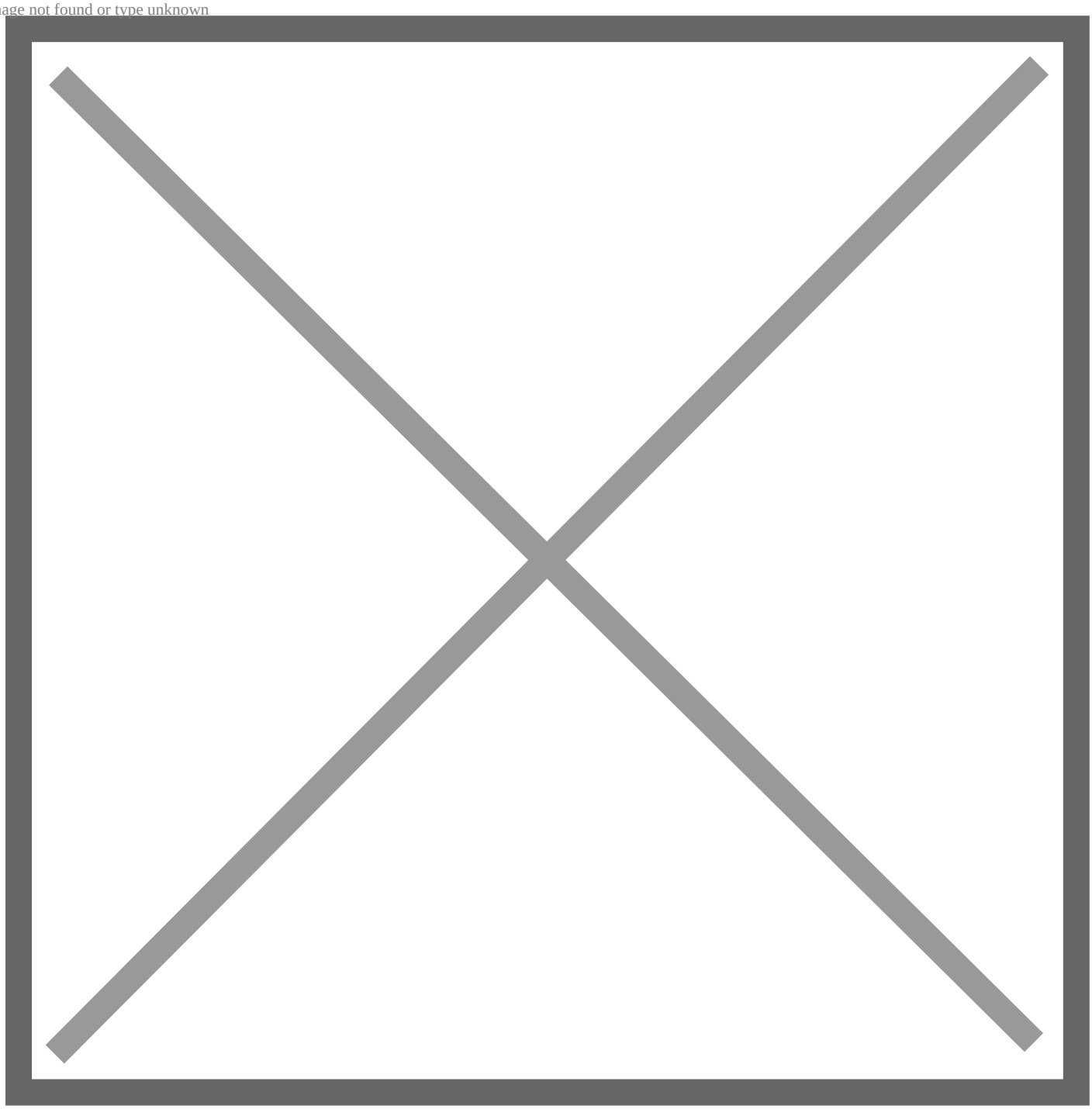
Vivid Solar Project Harvests Energy with Flair

June 12, 2026

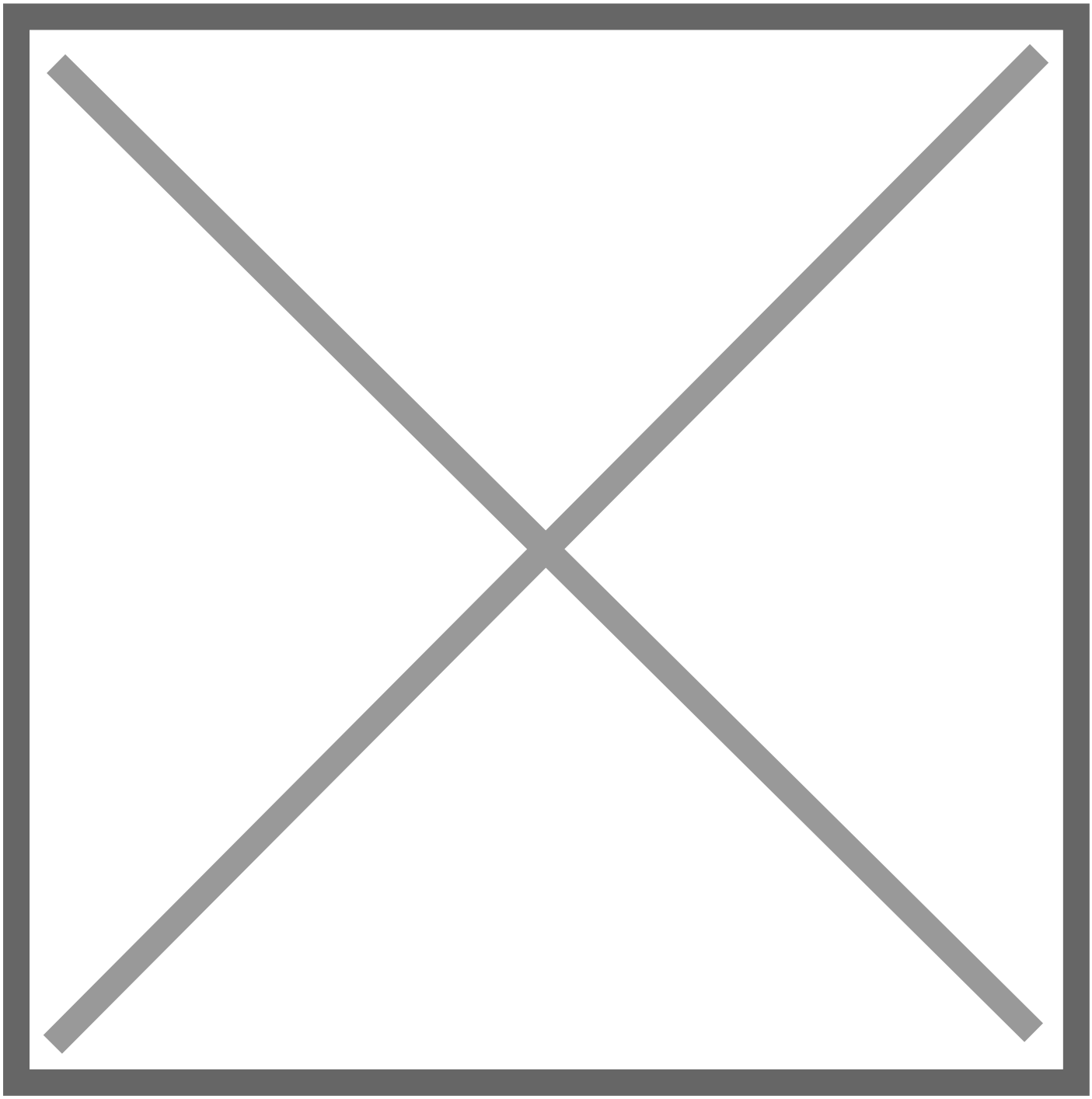
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A cross-functional team from Toyota’s Advanced Product Planning Office (APPO) and Toyota Research Institute of North America (TRINA) have found a way to combine vibrant color schemes with proven solar technology, resulting in innovative and appealing ways to harvest energy.

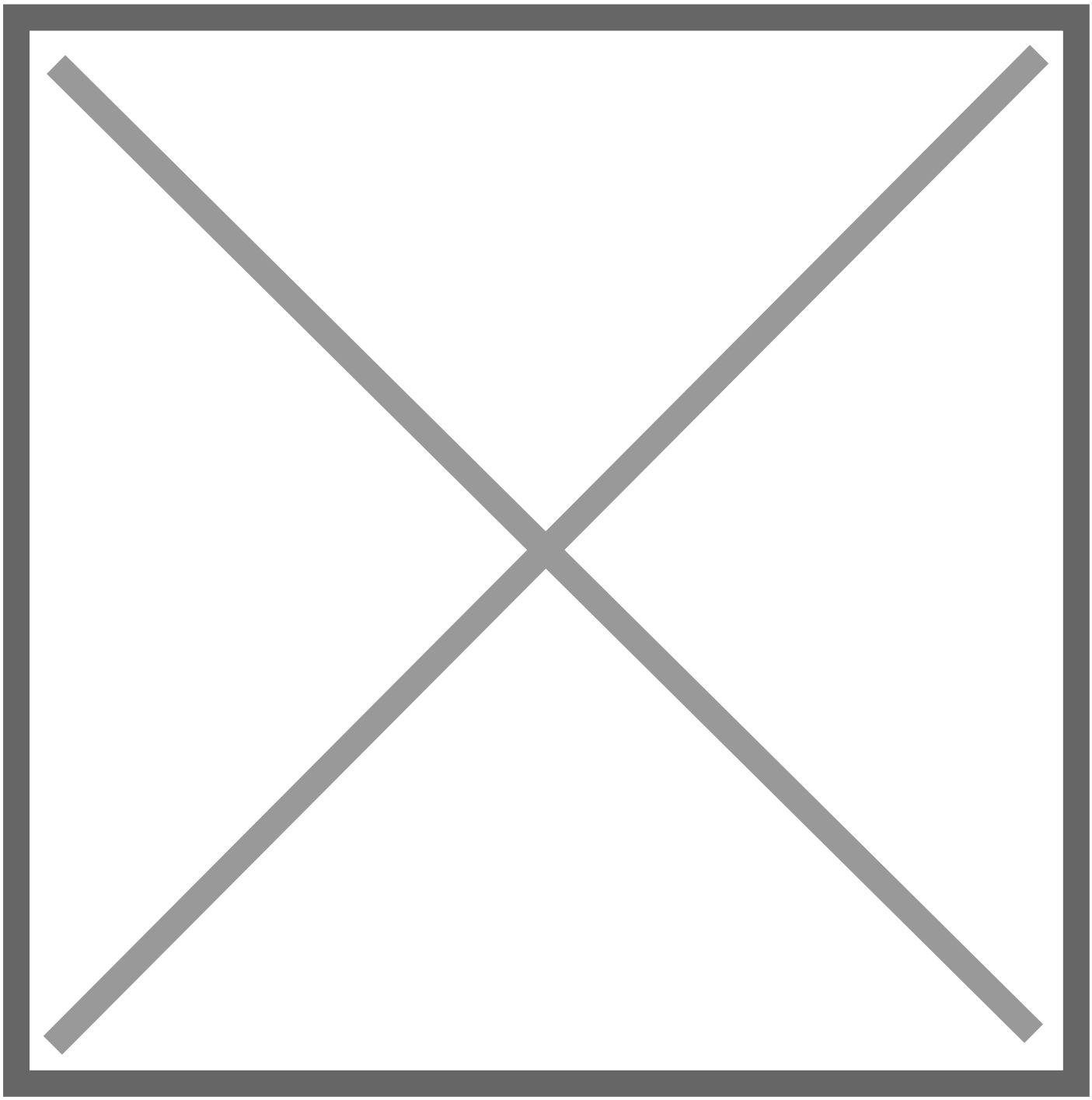
The Vivid Solar Sculptural Display was recently unveiled at Toyota's Research & Development (R&D) facility in Saline, Michigan, as part of an all-hands meeting for team members.

The 1/6th scale Solar Sculpture is a self-sustaining, carbon-neutral wayfinding monument. It features 11 triangular columns arranged in two opposing semicircular arcs. When in its public environment, it will never appear to be static to viewers. The sculpture demonstrates how a distributed energy infrastructure can be beautifully embedded within spatial environments. By day, it is a dynamic instrument of perception; by night, it transforms into a self-contained luminous beacon.



How It Works: Lenticular Technology

The system pairs solar technology with lenticular lenses to conceal the solar panels while preserving their energy-harvesting potential. An array of tiny, curved lenses directs the viewer’s eye to printed artwork from specific angles. Simultaneously, the lenses allow sunlight to pass through the photovoltaic cells. This dual functionality creates a dynamic visual experience without sacrificing environmental performance.? There are more than 10 patents, either approved or pending, around this technology and related projects.



Project Origins
Co-project leader Songtao Wu, senior principal scientist in the Materials Research Department, said the project started as a request from Toyota Motor Corporation (TMC) in 2020, building on TRINA's earlier work led by Debasish Banerjee and Mindy Zhang.

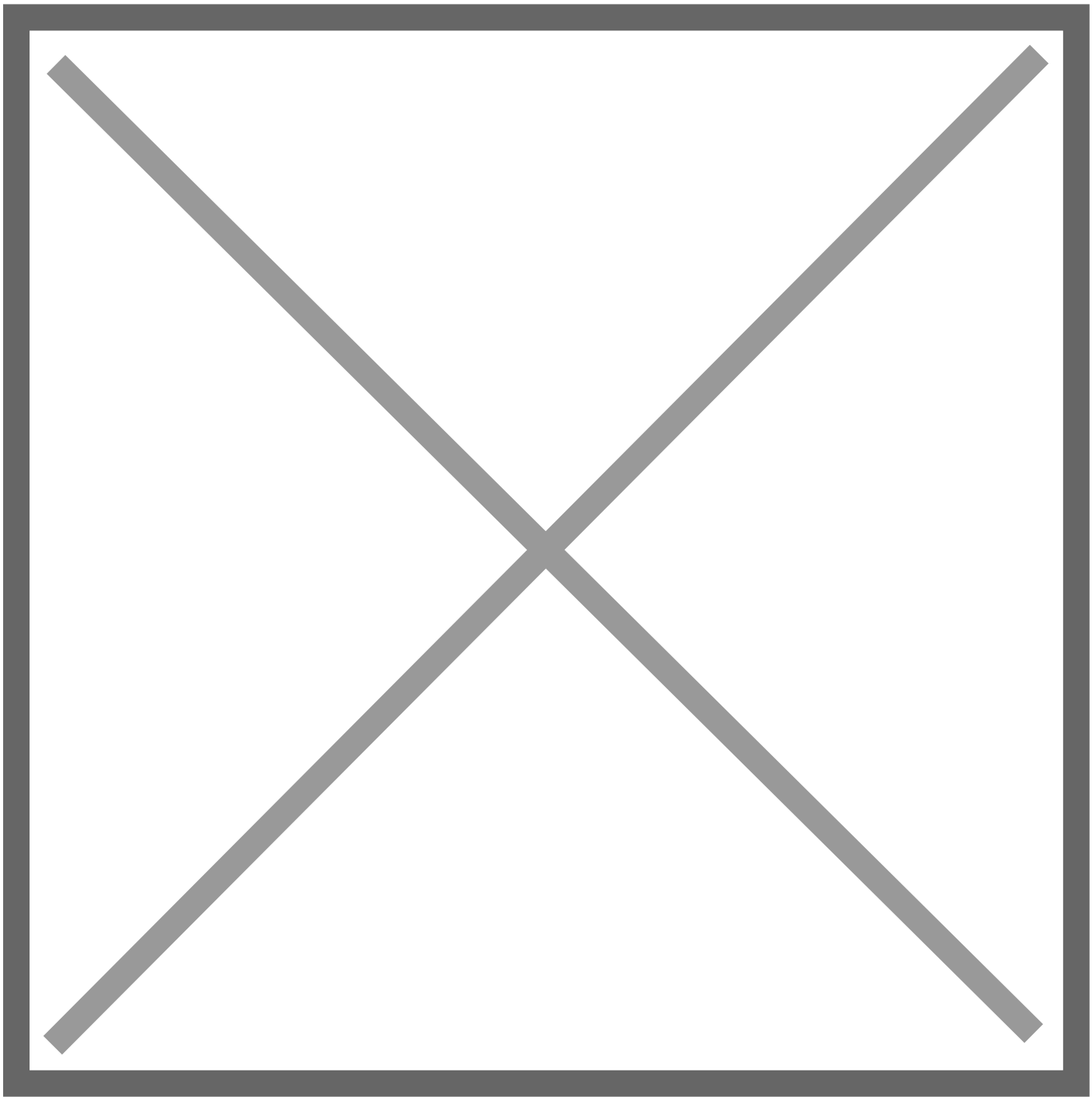
Wu said that 12 years prior, TMC successfully developed dynamic color pigments, such as a brilliant blue coating for Lexus products, using nanotechnology. Toyota was interested in expanding applications for this technique, such as exterior film for solar panels.

Although the TMC-funded project concluded, APPO recognized its potential and provided North American funding and project support to help move the technology closer toward commercialization. A few years later, the project gained momentum when a Vivid sculptural round-about wayfinding design was requested for potential full-scale placement at the Toyota North Carolina plant in Liberty.

Applications Today and Beyond
This high-performance Vivid technology, with colored or branded panels, can also be deployed on standard solar arrays while retaining greater than 90% of the native solar panel energy harvesting performance.

In fact, for the past two years, a vehicle-emblazoned graphic on a solar array near Toyota R&D's towering sign, just off the M-23 expressway, has produced great energy retention results and endured the harsh 2025-26 winter.

A slightly different and more artistic application recently occurred in Gardena, California at Toyota's North American Hydrogen Headquarters (H2HQ). Engineers installed brilliant red VIVID solar "petals" on the existing "Smart flower array" near the headquarters' entrance.



The apparatus provides power to the main building. The small 2.5 kW showcase array produces 6,000 kWh per year or the equivalent energy consumption of one battery-electric vehicle driving approximately 50 miles per day.

Co-project leader Brian Woods, a program manager at APPO, said the sky is the limit for this marriage of “aesthetics meets solar harvesting.”

“When you consider both display and advertising possibilities, there is great ROI potential for this technology,” Woods said. “It combines an environmentally conscious power source with limitless branding potential.”