Power Up: How Toyota’s Fuel Cell Generators Are Helping Bring Cleaner Energy to Public Events

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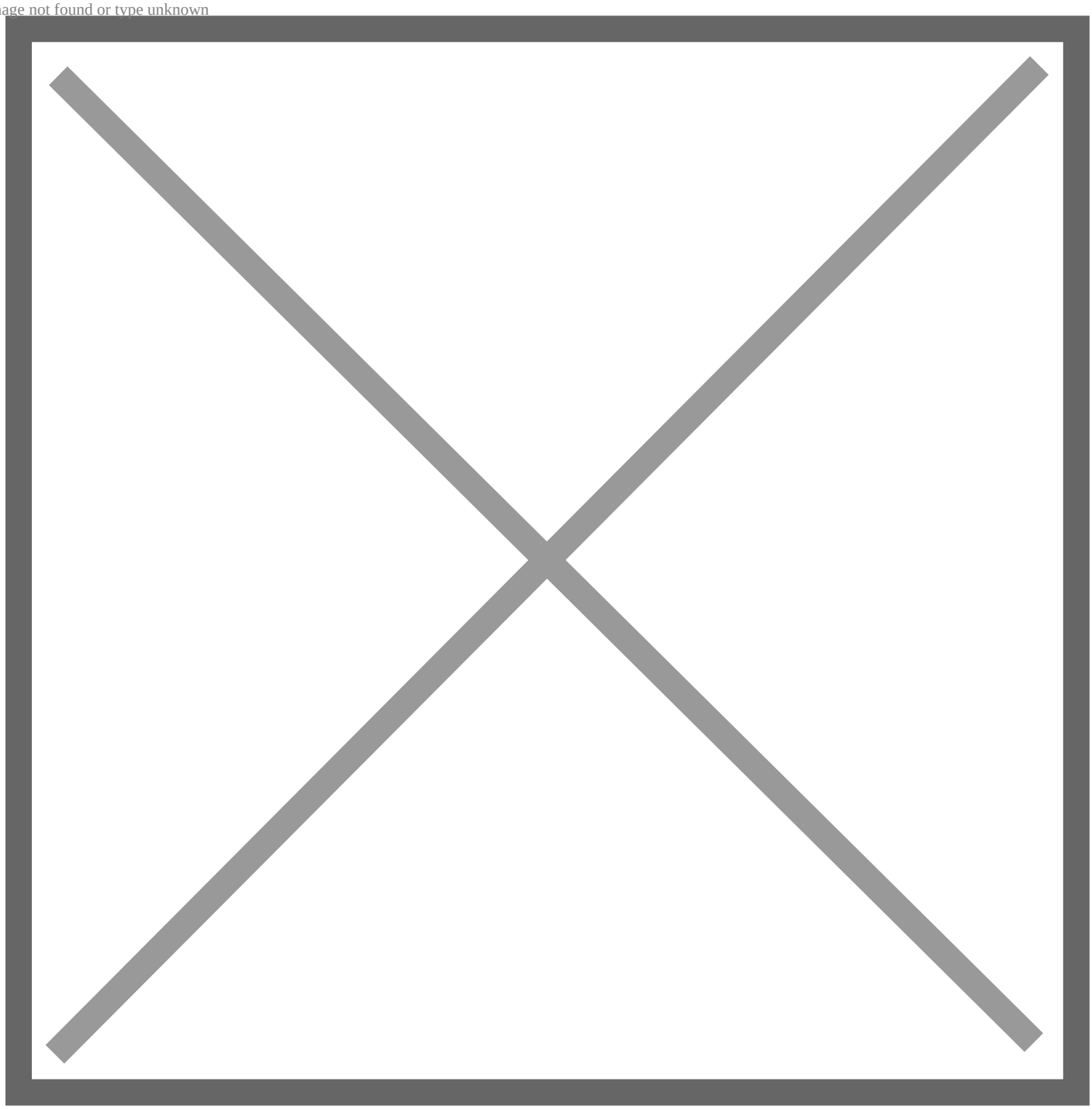


When it comes to Toyota's commitment to reducing carbon emissions, the company's fuel cell generators, which use hydrogen to produce electricity, play a growing role in Toyota's multi-pathway portfolio. And by growing role, we mean there's plenty to talk about on Toyota's hydrogen horizon.

And it's not just in cars.

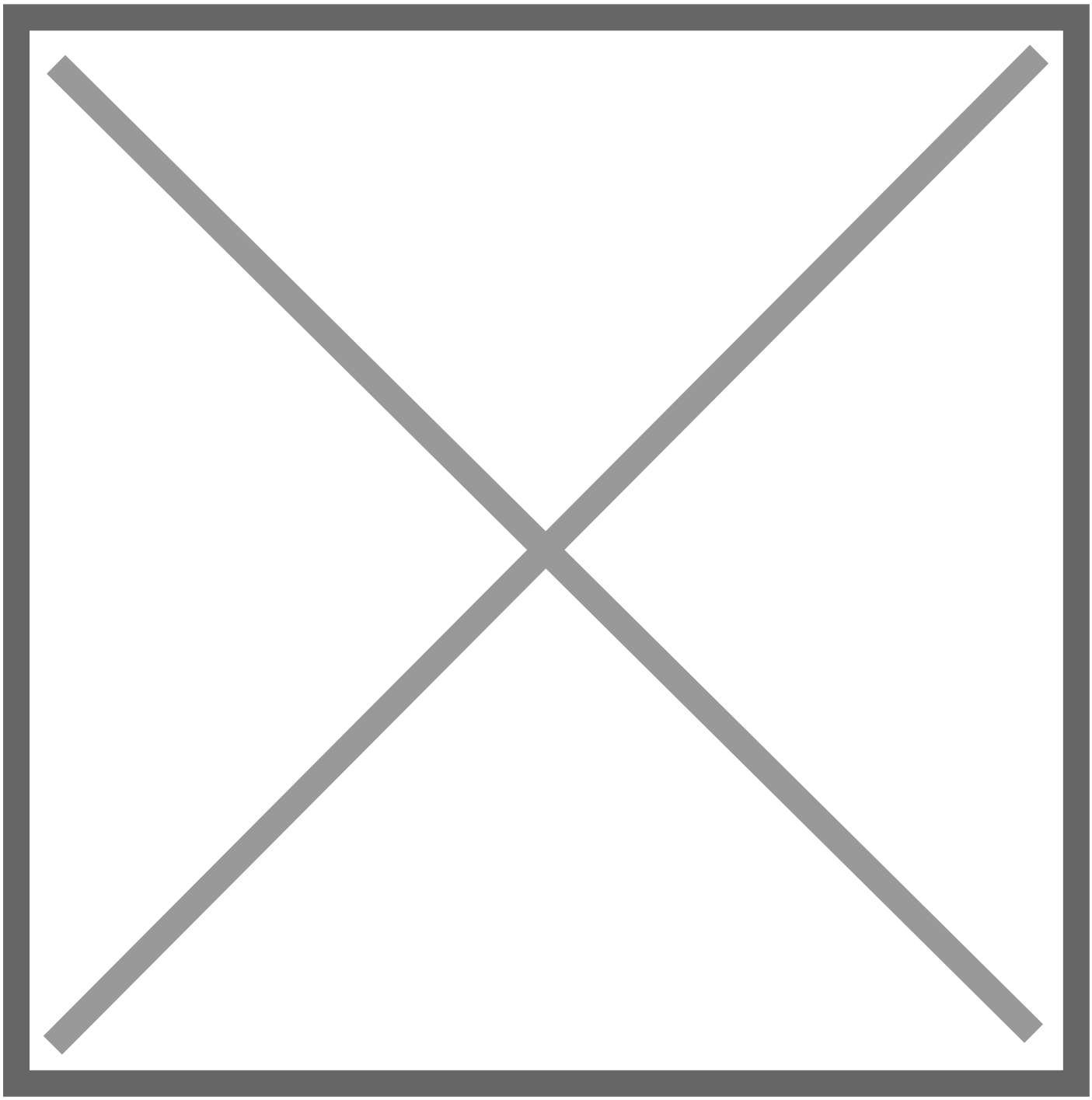
Stacked in the beds of Toyota Tundra pickup trucks, these mobile power generators can be taken across the country, from California to as far east as Florida providing cleaner power for a variety of events.*

"You're using hydrogen, so you'll have energy with the only byproducts at point of use being power and water," said Craig Cauthen, who manages Emerging Technologies at Toyota Racing Development (TRD).

Generating a Speedy Process

In 2021, Cauthen and a handful of engineers on the TRD engineering team in Costa Mesa, California, were asked to develop a fuel cell generator system based on technology from the first-generation Toyota Mirai.*

"Once we figured it was possible, we said, Let's make it portable. Let's make it lightweight. Let's make it easier to move around," Cauthen said.



Powerful Events
The team recognized that the fuel cell generators could be used at local and Toyota-sponsored events around the U.S. that needed off-grid power.*

From live performances to racing events, these fuel cell generators have powered outdoor events nearly silently and with zero emissions at the point of use. Not only can they provide cleaner energy, but they’re also sensory positive.

“If you’ve ever been to an event, concert, or anyplace like that, there are always generators running,” Cauthen says. “These fuel cell generators are relatively quiet. You can have a conversation next to them while they’re running. You can power just about anything if you have a tank of hydrogen.”*

Spreading the Word While Moving in Silence

It can be an eye-opening experience to learn that a fuel cell generator can power so much while remaining virtually noise-free.

“From an R&D standpoint, we heard that TRD had this fuel cell generator in the Tundra and wanted to give it more face time with the general public,” says Debby Byrne, an executive program manager at Toyota. “So, I think from the advanced product planning office [APPO], we wanted to get more information about hydrogen and hydrogen technology, fuel cell technology, out into the public.”

Byrne adds, “I think a lot of people are familiar with EVs (electric vehicles) but not fuel cells. So, it was an opportunity to kind of take what TRD had done and then showcase it in different demonstration events.”

For example, the fuel cell generators had been used to power three food trucks in Detroit during a community event, delivering 10 kilowatts of power.

“Normally when you have a food truck rally, every single one has that diesel generator,” she says. “It’s loud and you smell those fumes rather than the food that you’re trying to eat. So, it was a good opportunity to partner with the City of Detroit to showcase this technology.”

Fueling the Future

Byrne also believes the future looks bright for fuel cell generator opportunities and more.

“From a global standpoint, Toyota has pushed fuel cell technology as something that is scalable,” says Byrne. “So, we really want to showcase how fuel cell technology has the capability to work in many different applications almost seamlessly.”

Added Cauthen: “Hydrogen fuel cells are a technology that can be used now. It’s not a far-off dream or a concept technology. Fuel cells can be done today. They are here.”

*Gaseous hydrogen is transported in compliance with Title 49 of the Code of Federal Regulations set forth by the U.S. Department of Transportation. The hydrogen fuel line in the trailer is separate and disconnected from the Toyota Tundra Fuel Cell Generator at the time of towing.