

Hydrogen It Is for Jackie Birdsall

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Since arriving at Toyota Technical Center in 2012, Senior Engineer Jackie Birdsall has been instrumental in developing fuel cell technologies for the consumer market, most notably the Mirai, Toyota's hydrogen-powered, zero-emission vehicle.

A self-described “auto obsessive,” she’s also become one of the most tireless public advocates for sustainable fuel cells.

On a recent Saturday afternoon in Los Angeles, Birdsall was explaining the benefits of hydrogen to a group of curious school-age kids, all members of local science clubs.

“Have you ever seen this before?” she asks, flashing a slideshow image of a highway traffic jam where idling cars are releasing a fog of tail-pipe exhaust.

“That’s gross,” says one girl, and everyone moans in agreement.

“Now imagine the noise these machines make,” says Birdsall. “And they’re releasing soot into the atmosphere. Do you think that’s good for the environment?”

A chorus of high-pitched “no”’s punctuate the room. Then the questions come.

Why is hydrogen better? How does a fuel cell work?

Displaying a small-scale model of the 2018 Mirai, Birdsall shows them how the real-life vehicle converts hydrogen and air from its intake system into electricity, emitting nothing more than water at the end of the process. The response is enthusiastic.

“Crazy, right?” says Birdsall, clearly enjoying the exchange with younger, eco-conscious minds.

“Anything that’s powered by gasoline or diesel we can replace with a domestic, renewable energy source that results in zero emissions,” she continues. “If I were to release hydrogen right now into the atmosphere, it’s more buoyant than air and it would dissipate. It’s also non-toxic, odorless and has zero color. So imagine a time in the future when we don’t have to clean up after an oil spill ever again.”

Although it will be a few years before most of her audience is old enough to drive, Birdsall is encouraged by the youngsters’ enthusiasm for the Mirai, which has an EPA-estimated driving range of 312 miles per fill, has an EPA-estimated 67 MPGe*, and takes just five minutes to refuel. But it’s the zero emissions element that has the kids beside themselves.

“I want one!” the eldest girl says dreamily. “Me too!” says a boy half her age, before everyone tumbles outside to explore a real Mirai parked outside.

Birdsall herself is in high spirits at the end of the teach-in. The kids are going to be alright.

**2018 EPA-estimated 67city/67 highway/67 combined MPGe for Mirai and 312-mile driving range. Actual mileage will vary. Range measurement pursuant to SAE J2601 standards (ambient temperature: 20°C; hydrogen tank pressure when fueled; 70 MPa). Fueling time varies with hydrogen fueling pressure and ambient temperature.*