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With a Jolt From Tesla, a More Electrifying Utility

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VENICE, Calif.

THE top speed of a vehicle usually doesn't mean much — until, that is, you're running late for a flight, as I was in Los Angeles a few Saturdays ago.

I punched the Sport button on the all-electric [Toyota RAV4 EV](#) that I had been driving for two days and slammed the accelerator to the floor. The burst of power — in a blink it kicked me past the 75 m.p.h. traffic in the fast lanes — was not what I expected from a small battery-powered crossover.

The electric surge was transformational. Still gaining speed at a good clip, I could easily have zoomed to the 100 m.p.h. top speed listed in Toyota's specifications. (For the record, the top speed in Normal mode is 85.)

The electric drivetrain from Tesla Motors, maker of the rollicking two-seat Roadster that has helped overhaul the spinster image of [electric cars](#), turned a sedate Toyota utility wagon into a high-riding 4,032-pound electric beast. I made it to the airport with time to spare.

The story of the 2012 RAV4 EV, which goes on sale this month at about 60 Toyota dealerships in California, represents the melding of two disparate corporate cultures — one a staid but successful Japanese behemoth, the other a disruptive California start-up — into a single machine.

The May 2010 ceremony that announced their partnership was equal parts Hollywood, Marvel and anime. Arnold Schwarzenegger, the former Mr. Universe who was California's governor at the time, presided. Elon Musk — Tesla's chief executive, a practicing rocket scientist and the inspiration for the billionaire Tony Stark character in the "Iron Man" films — shook hands with Akio Toyoda, Toyota's chief. Mr. Toyoda, heroic in his own way, had three months earlier offered a self-effacing, apologetic bow before the Japanese people for his company's gas-pedal safety gaffe.

The governor pointed to Toyota's quintessentially nerdy hybrid. "The Prius is an extraordinary car that goes more than 50 miles per gallon," he said. "That was revolutionary."

He then pointed to a [Tesla Roadster](#), built on the chassis of a Lotus sports car, and said, "You can do something that is very sexy-looking, that goes from zero to 60 in less than 3.9 seconds."

With an actor's timing, he turned to the crowd and said, "Both of those forces now come together."

Two years later, here I was, driving the embodiment of that union, a joining of the efficient-but-tepid Prius with the screaming-fast Roadster.

The choice of the RAV4 as the platform for a Toyota-Tesla venture was far from certain when engineers from the companies first met. The Tesla group, mostly unfamiliar with Toyota's full model line, boned up by visiting a showroom.

"O.K., here are all the Toyota cars," J B Straubel, Tesla's chief technical officer, said to his team. "What can we make into an E.V.?"

When Mr. Straubel first met Greg Bernas, Toyota's chief engineer for the project, Mr. Bernas was leafing through a newly purchased technical primer for electric vehicles, noting that his team members were thinking about E.V.'s for the first time in their careers.

The RAV4 platform was chosen, in part, because it could carry a battery pack large enough for a reasonable range. It also met a requirement set by Mr. Toyoda: that it be built in North America. The RAV4 also had an E.V. pedigree: in 1997-2003, Toyota produced some 1,500 electric RAV4s.

In the past decade, the RAV4 has bulked up and grown in length, but its design has not exactly been a trendsetter. It is functional, reliable and drab; everything in its place, but devoid of personality. There's a reason Kanye West rhymes, "What you think I rap for? To push a RAV4?"

My first miles in the RAV4 EV took me north from Newport Beach along the Pacific Coast Highway. When I arrived at my Venice destination, the dashboard display read 47.5 miles, with an estimated 98 miles of remaining range. In other words, after a trip of nearly 50 miles there was almost 100 miles of electricity left in the battery.

By comparison, the Nissan Leaf I drive at home usually won't go more than 80 miles on a full charge, period. The main reason for this difference is onboard electricity storage: the Tesla-made battery pack in the RAV4 EV has a capacity of 41.8 kilowatt hours, while the Leaf's is 24 kilowatt hours.

The E.P.A.'s efficiency rating, expressed in miles-per-gallon equivalent, has not been released, though Toyota said it expected a combined figure of 76 m.p.g.e. For comparison, the Leaf is rated at 99 m.p.g.e. and the [Ford Focus EV](#) at 105.

By the end of the day, I had ventured farther north toward Ventura and then back to Venice, clocking 127.6 miles on a single charge, the battery going from fully charged to almost completely empty. I seldom used the Sport mode and ran the air-conditioner for only a few minutes.

The next day, I did my best imitation of an action hero on Los Angeles streets. Trying to find the lower limit of the RAV4 EV's range, I screeched away from stoplights in Sport mode and blasted the air-conditioner. On that drive, I managed 102 miles, with an estimated 19 miles remaining.

The raison d'être of a big battery is to provide longer range, but the bonus here was that heaping abuse on the Tesla powertrain had relatively little effect on overall range. Through the accelerator pedal I got the feel of Tesla's devotion to megadoses of electric power, and with the 845-pound battery pack planted beneath the center of the cabin, the handling was solid. (The E.V. version of the RAV4 weighs about 470 pounds more than a similarly equipped V-6 model.)

Using all of the 154 horsepower and 273 pound-feet of torque available in Sport mode — on the road, the power is far more impressive than the numbers sound — my zero-to-60 runs measured a brisk 7 seconds, about the same as a gasoline RAV4 with the V-6 engine. Switching to Normal mode, which cuts torque output to 218 pound-feet, the same run took 1.5 seconds longer.

The RAV4 EV's brakes are transplanted from the Prius, and follow that car's operating philosophy for regenerative braking.

"As soon as you step on the brake, we're going to take over," said Sheldon Brown, Toyota's executive program manager for the RAV4 EV. "Our system effectively captures all the available energy."

Toyota's approach has been widely criticized; reviewers complain about a vague pedal feel when the drive motor shifts to its regenerative mode and charges the battery. Numb though it may be, it has the benefit of being familiar to many drivers.

"We know our folks like the Prius," Mr. Brown said. "We have millions of miles on the road with it. We wanted to keep the same feel."

The RAV4 EV also takes its gearshift handle from the Prius, which looks ridiculously small on a vehicle this size. It comes across as an example of corners cut to meet a hurried production schedule; RAV4 EVs started rolling out of the assembly plant 22 months after the program's announcement.

Other irritants: the vehicle has no quick-charge port, so replenishing the battery to its full 41.8-kilowatt hour capacity takes at least a six-hour session, even on a 240-volt circuit. There's no third-row seating option or all-wheel drive capability. And as with the gas-powered RAV4, the rear cargo door swings awkwardly to the side to open rather than lifting upward.

But in the larger picture, the Toyota-Tesla RAV4 EV could be a watershed for electric vehicles, demonstrating that E.V.'s can be big and gutsy. The vehicle's size — combined with Toyota's reliability and Tesla's exuberant propulsion

— shreds nearly every common objection to electric vehicles available now or on the horizon. Most notably, the consistent range of about 120 to 130 miles is delivered even when your drive is a spirited romp and the air-conditioner is run full-blast. Kanye should give this RAV4 a try.

With the plus-size battery that makes it all possible comes a hefty price: \$50,610, before a \$7,500 federal credit and a \$2,500 California rebate; Toyota expects to announce a lease plan this month. The EV is equipped with about the same level of amenities as the gasoline-powered RAV4 Limited V-6 model, which costs \$31,279. (Well, there's no leather upholstery, but the EV borrows more efficient headlamps from Lexus.)

Still, \$40,000 buys a Tesla-brewed Toyota that offers generous space for passengers and cargo, and even if you commute alone, there's no need to feel guilty, because there's no tailpipe fouling the atmosphere. Only 2,600 units will be made, with production wrapping up at the end of 2014. The limited run, I believe, will only heighten its appeal, earning Toyota a legion of interested customers begging the company to make more.
