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"Everything's sliding our way," says Abbott as we tour his 'skunk' shop, which is littered with classic cars – he has a thing about 'ABCs', as in Arcane British Cars such as MGs, Austin

Healeys and Sunbeams – in various stages of refit. "A year ago we wouldn't have gotten any customers. Now we're almost at 40 in the last month. I just got a call from a limo company that uses stretch Hummers. They're paying \$US30,000 [\$38,700] a month for gas. I can convert a Hummer for \$US30,000."

It was four years ago that I took my first drive in an electric car, an early Toyota Prius, down a windy Topanga Canyon back road towards Malibu. It was an odd and slightly unnerving experience, not because of the car's performance, which was unremarkable, but because the ride was – by the standards of my ancient Volvo, or every car I had ever driven – utterly and eerily quiet.

But quiet is the new highway cool in California. It's a long way from some 40 years ago, when local car nuts – the breed celebrated in the George Lucas movie *American Graffiti* – worshipped the throaty roar that came from seriously

Greg Abbott ('Reverend Gadget') of Left Coast Conversions electrifying Tommy Chong's massive 1946 Oldsmobile low rider in June this year.

DETROIT

STORY BY PETER HUCK PHOTOGRAPHS BY KEVIN SCANLON

GOES

CALIFORNIA'S BOOMING ELECTRIC CAR SUBCULTURE COULD REMAKE THE US AUTO INDUSTRY

ELECTRIC

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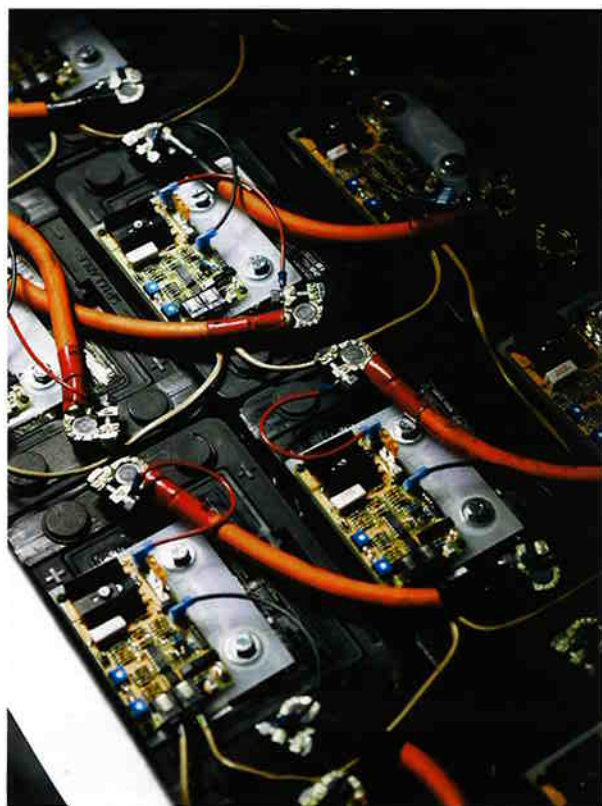
DETROIT GOES ELECTRIC

STORY BY PETER HUCK | PHOTOGRAPHS BY KEVIN SCANLON

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alone in the race to the electric market. “There’s a whole subculture of people who convert regular gas cars to electric drive chains,” he says.

In San Diego, at the testing grounds of AC Propulsion (which makes Wrightspeed’s electric motor), Alan Cocconi’s Zero Roadster has done 0-to-96 kmh in 3.6 seconds. Other famous names in the e-car underground include Randy Holmquist, who converts pick-ups; Energy CS, which creates plug-in hybrids (adding lithium-ion batteries to boost a 17 km/L Prius to 42 km/L, for instance); Commuter Cars, which makes the weirdly narrow Tango T600 e-car; and Roderick Wilde, who races an e-truck on the National Electric Drag Racing Association circuit. And there is also the fabled EV1, the General Motors electric car whose mysterious recall, after GM had spent \$US1 billion developing the technology, prompted Chris Paine to make his 2006 hit documentary, *Who Killed the Electric Car?*

“It’s like they were trying to erase history,” Paine told the *Los Angeles Times*. The EV1 was developed to comply with California’s Zero Emissions Mandate, which stipulated that 2 per cent of all new cars sold in the state – America’s dominant car market – had to be emissions-free by 1998 (rising to 10 per cent by 2003). Toyota and Ford also produced electric cars, but the EV1, unveiled in 1996, became the standard-bearer. Then, after the Californian initiative was quashed in 2003, the EV1 (about 1,000 were leased, but not sold) was abruptly

recalled. Paine lost his car when he took it to a dealership to check the wheels.

A fervent advocate of electric cars, he blames Big Oil, Detroit, the government and consumers for the EV1’s demise. GM argued that the EV1 lost money and had poor battery range. But Paine’s film caught the public mood and followed on the heels of Al Gore’s global warming film, *An Inconvenient Truth*, as an art-house hit. GM is now developing a hybrid-electric car that can be recharged at any standard electric outlet.

A LATTER-DAY Tom Wolfe would relish California’s electric dragsters and six-figure sports cars, but there is a sense of *déjà vu* about the electric car. Electric motors have been around since 1835. In 1899, an e-car broke the 100 kmh speed barrier. Thereafter, they were eclipsed by the internal combustion engine. After recalling the EV1, Detroit turned its back on e-cars to focus on hydrogen and ethanol-powered engines, even though production of both fuels contributes to global warming. Meanwhile, the Bush administration refuses to raise its Corporate Average Fuel Economy [CAFE] standards.

The question for the electric car remains whether it will emerge from the shadows. Will the rubber really hit the road and reduce our dependence on fossil fuels? As all this activity suggests, the signs are propitious. These are tough times for the US car industry. General Motors and Ford, leviathans for much of the past century, are on the ropes, staring at

customised V6s, V8s, or V12s. ‘Kustom’ kings, such as George Barris and Ed ‘Big Daddy’ Roth, chopped and channelled the latest behemoths from General Motors and Ford, part of a grassroots subculture explored by Tom Wolfe’s classic 1963 book, *The Kandy-Kolored Tangerine-Flake Streamline Baby*. Motorheads celebrated the shock of the new by deconstructing technologies from the past: you took something off the Detroit assembly line and tricked it up in the rebuilding. These days, varoom! varoom! is being replaced at the cutting edge of California’s car culture by the distinctly un-macho sound of a hair dryer. The new sensation in town is the electric car.

Next year, Tesla Motors, a modest-sized company based in San Carlos, California, will debut its \$US89,000 Roadster sports car. Designed in Silicon Valley and built by Lotus in England, the Roadster will be one of the fastest and quietest rides in the state. California’s new wheels leave the internal combustion engine in the dust (even the Roadster’s 0-to-96 kmh in four seconds is not the fastest time clocked by the new breed), as under-the-hood tinkerers and Silicon Valley nerds retool the US auto industry and help save the planet.

Anyone who wants to savour the buzz generated among car aficionados by e-cars should take a look at a video posted by New Zealand car designer Ian Wright on his website, wrightspeed.com. It shows a contest, held in 2005 at California’s Sears Point racetrack, between a Porsche Carrera GT, the fastest road car ever sold under the German marque, and Wright’s prototype, the Wrightspeed X1. The Kiwi’s retooled Aerial Atom street racer – a stripped down, no-frills vehicle without doors, roof or windscreen – left the Porsche for dead, winning by 20 car lengths.

“It’s faster than anything else you can buy for less than \$1 million,” says Wright. The New Zealander is selling extreme performance: 0-to-96 kmh takes a little over 3.5 seconds. And the beauty of the high-performance electric car is that, unlike conventional vehicles, there is no trade-off between power and fuel efficiency. The Wrightspeed boasts about 71 kilometres per litre on one charge of its lithium-ion batteries, the sort used in laptop computers.

Like Porsche, Wright wants to sell a high-end sports car. “The definition of success for my company, five years from now, is 1,000 cars a year at \$US120,000 each.” Wright, who left a New Zealand sheep farm for a high-tech career (first in Sydney, then in Silicon Valley), is scouting for investors. He hopes to start production within two years. And he is not

THESE DAYS, VAROOM! VAROOM! IS BEING REPLACED AT THE CUTTING EDGE OF CALIFORNIA’S CAR CULTURE BY THE DISTINCTLY UN-MACHO SOUND OF A HAIR DRYER. IT’S THE ELECTRIC CAR



Top left: Under the bonnet of Tommy Chong’s electric Oldsmobile. Right: Two views of Ian Wright’s Wrightspeed X1 – “faster than anything you can buy for less than \$1 million”, says the New Zealand designer.

COURTESY OF IAN WRIGHT



COURTESY OF TESLA MOTORS

bankruptcy. Soaring petrol prices, disenchantment with the Iraq war, and a post-Katrina recognition of the threats posed by global warming, are all sowing doubts about Detroit's firm attachment to the internal combustion engine. And what's bad for the old regime is an opportunity for the electric car.

There is no shortage of vision among the zealots. Abbott, who blasts Big Oil in Paine's film, wants to prime a mass market with battery kits and solar-powered carports, so e-car owners can charge up at home. "The plan is you drive for free," he says. "The sun keeps charging your car." Wright envisages a tipping-point scenario. "Over time, oil will get more expensive. That's certain. And batteries will get cheaper. At some point these curves will cross over. Suddenly, the attraction of electric cars will be economically unarguable. Then we'll have a seriously mass market." Yet, even with petrol in California hovering near \$US2.50 a gallon, this time has not yet arrived – in large part because e-cars are too expensive, averaging \$US30,000 more than conventional cars.

But next year could be a different story. Tesla Motors hopes so. The Roadster, which will roll out in California, New York, Miami and Chicago, will do 50 to 60 km/L, with a battery range of 400 kilometres. By Detroit standards, the car's engineering is revolutionary. Unlike petrol engines, which have some 100 moveable parts, the Roadster has just one, a rotor. Indeed, the 250 horsepower induction motor is so light (about 32 kilograms) it can be lifted. The other major components are a battery pack, a two-speed transmission, and an integrated electronics system.

Other than periodic check-ups, the car requires little maintenance, a radical feature that could put a dent in the multibillion-dollar US spare parts industry. "We are right at what is technically possible," says Marc Tarpenning, the Silicon Valley entrepreneur who, with Martin Eberhard, started Tesla. "Ten years ago you couldn't have made this car. No way. The battery technology and the electronics just weren't there. Even five years ago the batteries weren't good enough. The range just wasn't acceptable." Tarpenning says the Roadster's lithium-ion batteries will last well over 160,000 km. And the car is engineered to keep the batteries at 25 degrees Celsius to prevent the kind of flare-ups that can occur in laptops.

But sports cars are only part of Tesla's game plan. Unlike Wright, Tesla (named for inventor Nikola Tesla, who noted the electric car's potential for fuel efficiency in 1904) is also focused on the mass market. "They want to be Toyota," says

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Wright. "And I want to be Porsche." In fact, Tesla says it plans a four-door sedan that will be "big, fast and efficient", more like a BMW than a Corolla. "Our next car, which is already in development, is a four-seater," says Tarpenning. It will be very energy efficient, have fast acceleration, and a "lower price". He is convinced the US is ultimately headed towards electric cars. "Hydrogen cars don't make sense. They're hugely energy inefficient. Stock for the hydrogen fuel cell has fallen. Electric cars are the ultimate flexible fuel car."

E-cars can get electricity from any power-producing source – water, oil, coal, gas, nuclear, or alternative energy. Tesla would prefer the latter. While Abbott talks of home solar, Tarpenning envisages a possible purchase deal in which Tesla owners would buy into vast solar arrays in the Californian desert. "When you're looking to introduce something at a new company, you have to do it when it's just possible, not when it's easy. You have to move first," he says.

One of the pitfalls of the EV1 was that GM was ahead of the market. The popularity of the Prius suggests that the market has caught up. Tesla is gambling that people want to be responsible – cutting America's dependence on foreign oil and reducing its carbon footprint – and still have fun. But very few people have seen an electric car. Wright says that there has been an overwhelmingly favourable response whenever potential customers take a spin, yet advocates will have to overturn a popular perception that electric cars might run out of juice on the daily commute.

Meanwhile, California's growing political stance against global warming has provided a boost to the e-car movement. Although the big US car makers helped overturn California's

Tapping into star power

When Tesla debuted its Roadster in Santa Monica in 2006, the guest list included Governor Arnold Schwarzenegger. "He rode in our car," exults Tesla's Marc Tarpenning, who says the firm put out feelers to the eco-friendly Republican, but was still surprised when he turned up. Will Arnie buy a Roadster to add to his Hummer and Harley collection? "We don't comment on the purchase list," says Tarpenning.

Don't be surprised if rocket man Elon Musk, who kicked in half of Tesla's \$US60 million start-up funding, is on that list. And plenty of Hollywood's finest have shown interest in eco-friendly cars. Hybrids were a hit a few years back, when Cameron Diaz bought one. Leonardo DiCaprio bought three. So did *Seinfeld* creator Larry David (husband of global-warming activist Laurie). Ditto columnist Arianna Huffington, who runs a liberal salon for the stars.

Al Gore, seen by some Hollywood liberals as a presidential dark horse in 2008, following his hit documentary *An Inconvenient Truth*, drives a hybrid Lexus. Daryl Hannah gets points for a 1983 El Camino muscle car that runs on biofuel, made from animal fats or vegetable oils. But the real juice – as in looking cool, going fast, and saving the planet – can only be had from electric cars.

Tommy Chong's Olds conversion (see main story) may be old school – a gesture towards LA's 'chop and drop' auto heritage – but Mel Gibson and Tom Hanks were EV1 fans. So was Ralph Nader, the scourge of Detroit and a liberal Hollywood icon, until he helped torpedo Gore's 2000 presidential run. George Clooney counts the ultra-narrow Tango T600 among his rides and reputedly has his name on Tesla's list. He also drives a Jaguar, made over as a hybrid.

And while Schwarzenegger has proposed a 'hydrogen highway' for California, he also comes second to George Bush on the Hydrogen Association's 2005 List of Honorary Members. Considering the pains the Gubernator has taken to be on the right side of the environmental fence, it might make good sense for Arnie to be seen flooring a Roadster.

Zero Emissions Mandate in 2003, that wasn't the end of the story. Now a coalition of US states, cities and green groups, led by California, wants the US Environmental Protection Agency to set a national standard for carbon emissions, a challenge due to be heard by the US Supreme Court. A win for the plaintiffs would force Detroit to improve fuel efficiency, and, say e-car advocates, be a further boost for their cause.

"The way government creates regulations determines markets. And markets determine behaviour," John Browne, BP's chief executive, forecast to executives in Los Angeles last August. It is a rationale that California appears to have adopted wholeheartedly, passing a law that requires greenhouse gases be reduced 25 per cent by 2020 (California produces 2.5 per cent of the world's total), and suing GM, Ford, Honda, Toyota, Chrysler and Nissan on the grounds that they contribute to global warming and harm the state.

This trend is echoed in the marketplace. Clean technology is the fastest growing sector of venture capitalism, up 36 per cent in 2005, with \$US1.6 billion invested in alternative energies. About 30 per cent, or \$US484 million, is in Silicon Valley, presaging a new boom. "Clean tech could be bigger than software," says venture capitalist Bob Epstein. "We're at the same place software was 20 years ago."

Tesla's backers include several giant chancers from that era: PayPal co-founder Elon Musk, who is now building commercial space rockets; Google's Sergey Brin; and eBay's Jeff Skoll. Tarpenning predicts California's lead in high-tech engineering and electronics could resuscitate the US auto industry, tilting its axis towards the West Coast. "It's the right technology at the right time." ■