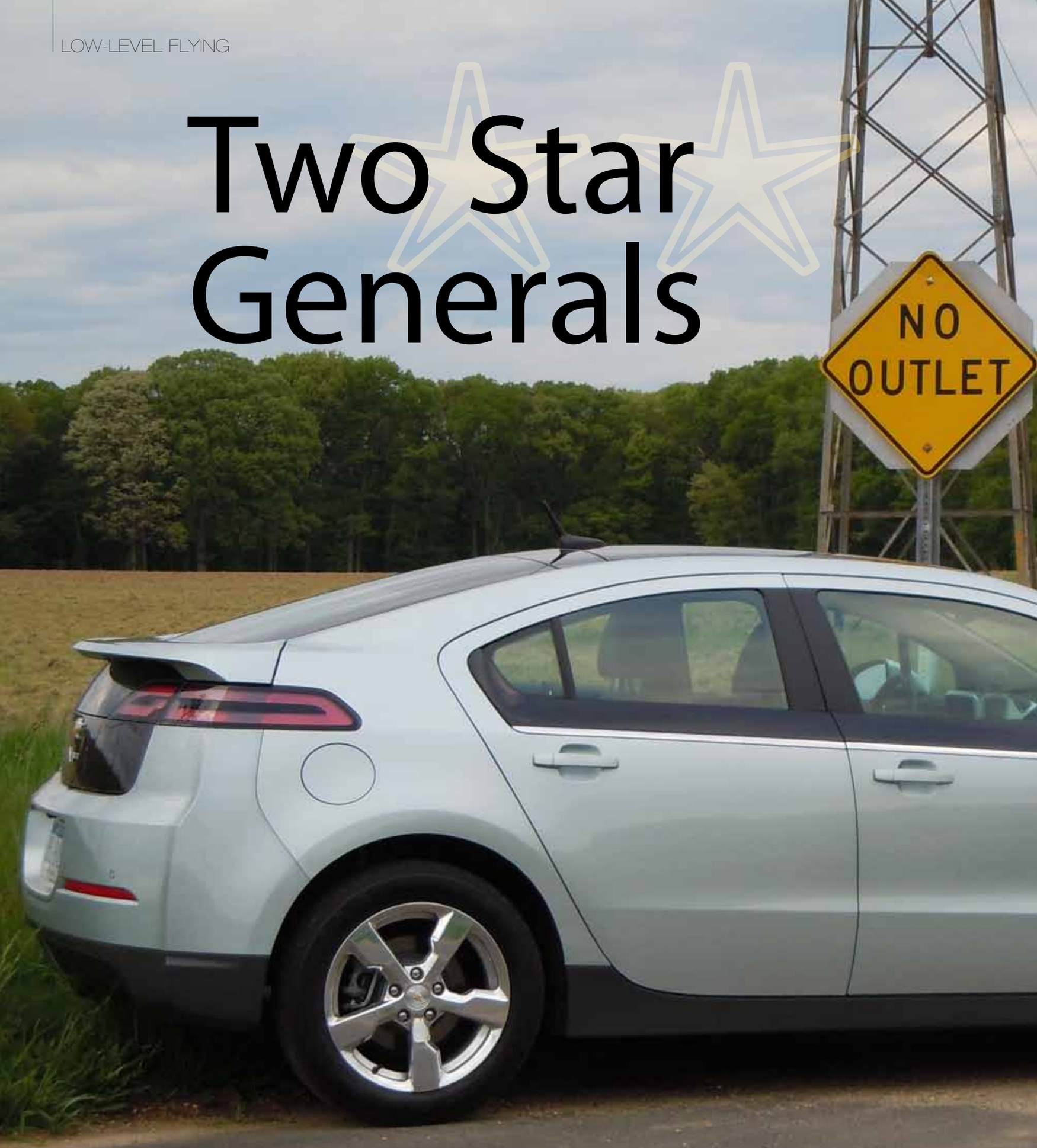
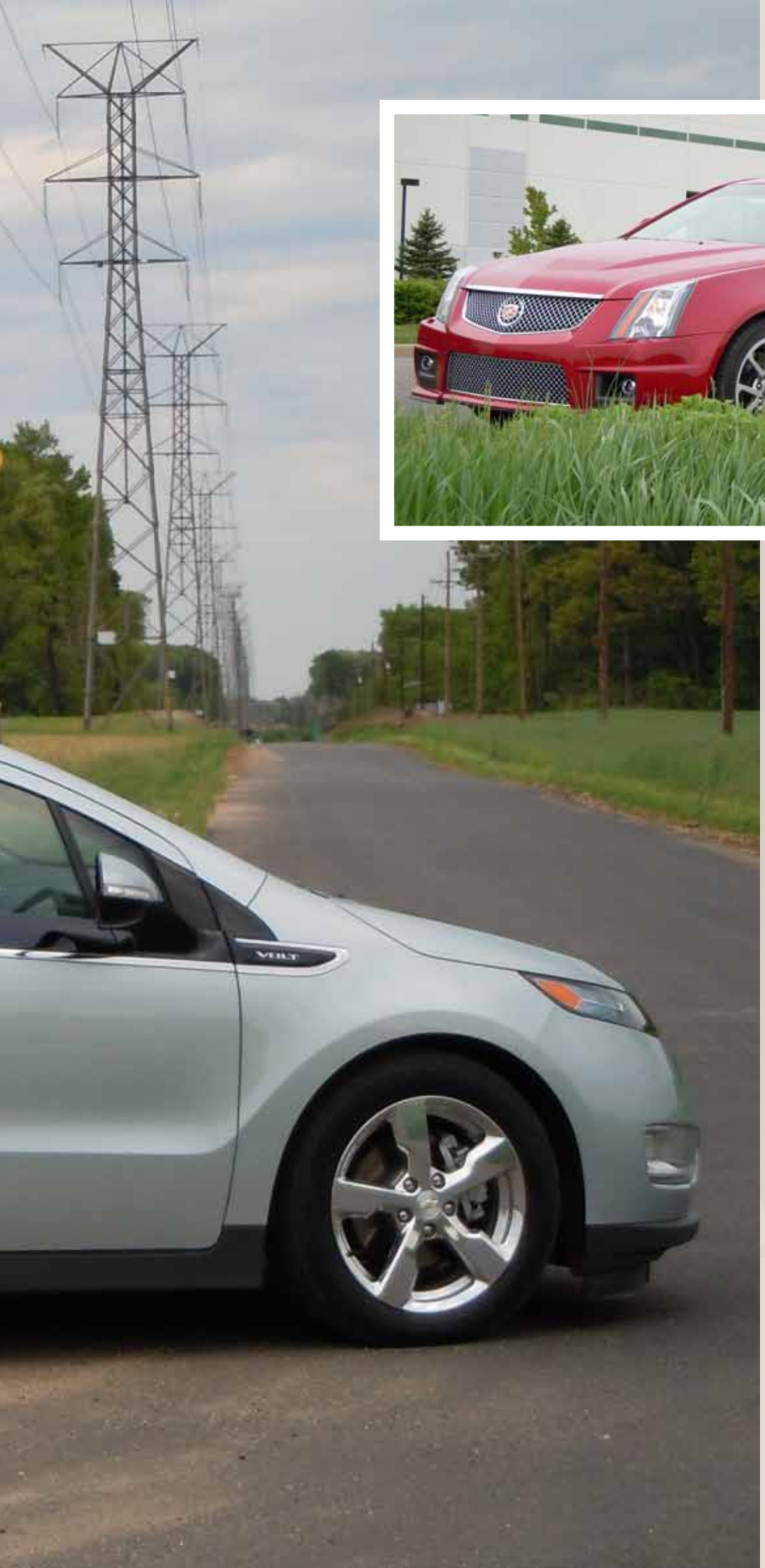
Two Star Generals



No outlet? No problem for Chevy Volt. Its gas engine kicks in once the propulsion batteries are exhausted.



Volt for the future; CTS-V for old times' sake

These GM cars are both on target for opposite ends of the market.

text and photography by Nigel Moll

NEARLY THREE YEARS AGO, MANY WERE WRIT-ing off General Motors for dead. They would have been right had the U.S. government not decided that the company–or more correctly, its huge workforce and the employees of all the suppliers that depended on it–was too big to fail.

Be that as it may and notwithstanding its past automotive transgressions, GM is back with a product line that bodes well, including a pair of truly diverse players: the Chevrolet Volt and Cadillac CTS-V wagon. A fellow car enthusiast asked me which two new cars I would buy if I had $120,000 to spend, and these came quickly to mind. They embrace the guilty pleasures of a superb sports car with a big V8 thirsty for gasoline and the conscience reset button of a cleverly executed gas miser.

As an occasional driver of my wife's 2007 Toyota Prius, I can attest to the satisfaction of stretching gasoline–not unlike the pleasures of riding the wind in a sailboat rather than powerboating. We put 60,000 miles on the Prius but eventually parted with it for two reasons: I never could get comfortable in the seats and our Bernese Mountain Dog

puppy rapidly outgrew the car's wayback.

The pup, who rode for a year in a gas-hungry V8 4Runner, and now travels in the back of a Jetta diesel wagon, wouldn't be happy in a Volt either, but I would, and not just for its more comfortable seats. The Volt's control stack suggests one is sitting in a giant self-propelled iPod, and the instrumentation graphics are eye-catching. The energy monitor includes a ball, like a spirit-level bubble, that grows larger and greener during efficient driving but shrinks into red-orange (to signify the fate of the planet, perhaps) when it detects energy being squandered. The government fuel economy website (fueleconomy.gov) shows the Volt as having 90 cubic feet of passenger space (versus 94 for the Prius).

The original Prius propels itself with the most efficient combination of gas engine and battery power for the circumstances, and as the battery runs down, the gas engine and regenerative coasting and braking recharge it–a process that the car's brain manages automatically and continuously in the background. The Volt, on the other hand, runs exclusively on battery power until the lithium-ion alchemy is 70 percent depleted, a process that happens in 30 or 40 miles, after which the gas engine alone serves primarily as a generator to keep amps flowing to the electric motor and the car in motion.

THE VOLT'S ENERGY MONITOR GIVES THE DRIVER A DETAILED PICTURE OF WHAT IS PROPELLING THE CAR AND THE RELATIVE CONTRIBUTIONS OF ELECTRICITY AND GASOLINE TO OVERALL EFFICIENCY.

There has been controversy disputing GM's claims that the Volt is revolutionary technology because its gas engine never drives the wheels directly, but on these pages we'll let the car's real-world numbers–compiled over the course of a week-long test–speak for themselves.

The gas engine and regenerative braking can recharge the batteries slightly, but the only way to recharge the Volt's propulsion batteries fully is to plug the car into a 240- or 110-volt outlet; the original Prius cannot be plugged in for a recharge, but newer models can. Plug-in all-electric cars such as the Mini E and Nissan Leaf have no alternative means of propulsion and, like a golf cart, they're dead in the water if the batteries run out of juice away from a charger.

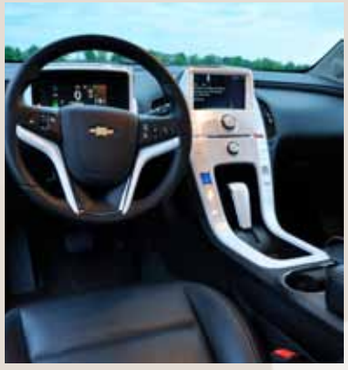
The best car for the job depends on the job. Long commutes favor a gas-electric hybrid; short ones can completely eliminate gas when driven in a Volt, Mini E or Leaf. My daily commute is more than 120 miles round trip, and our Prius averaged about 45 mpg on the mission. I was curious to see how the Volt would fare, considering it would clock the first 30 or 40 miles of my drive without burning a drop of gasoline. The answer also depended on how quickly the batteries would recharge at the office when plugged into 110 volts, the only outlet available there, rather than the swifter 220 volts.

After charging on 110 volts at home from 7:25 p.m. to 8 a.m., the car predicted its supply of electricity would be

CHEVROLET VOLT SPECS

Engine:	80-hp I4 1.4-liter gasoline "Range extender"
Motor:	Electric, 16 kWh lithium ion batteries
Motor output:	150 hp, 273 lb-ft
Transmission:	Automatic, driving front wheels
Curb weight:	3,781 lb
Power loading:	25.2 lb/hp
Top speed:	It's not that sort of car.
Zero to 60 mph:	Approx nine sec (gas or electric)
Fuel capacity:	9.3 U.S. gal
City/highway (EPA):	95/90 mpg electric; 35/40 mpg gasoline
Test averages:	61.3 mpg (6.98 gal for 428 miles driven)
Test tires:	Goodyear Assurance Fuel Max front and rear 215/55R17
Standard retail price:	$39,145
Price as tested:	$43,880

Source: General Motors



good for 34 miles as I left for work. In fact, the batteries took me 40.6 miles before passing the baton to the gasoline engine. When I arrived at work after a total of 61.2 miles, going 60 to 65 mph most of the way, the Volt's display showed that the car had traveled 40.6 miles on the batteries and 20.6 miles on 0.5 gallons of gasoline, for 122 mpg overall.

I plugged the car into the office's 110 volts at 10:15 a.m. and unplugged it two hours later to get lunch. The dashboard display indicated a battery range of eight miles. As I plugged the car back in at the office 25 minutes later, I saw that the three-mile round trip to buy a sandwich had burned 0.03 gallons and reduced battery range to six miles. Plugging into 240 volts (using a home base available from Volt dealers) decreases full charging time to four hours from 10, says Chevy.

At 5:50 p.m., after just over seven hours on 110 volts at the office, the car showed a battery range of 26 miles and total range (battery plus gas) of 310 miles as I left for home. The battery was depleted after 27 miles and gasoline carried me the remaining 34.2 miles home. The data accrued since the full overnight battery charge showed that with a partial charge at the office the Volt had used 1.49 gallons of gas to travel 125.7 miles, for a workday average of 84.7 mpg. The test car's indicated "lifetime mpg" figure was 43.3, suggesting

IT BLOWS ME AWAY THAT THE CTS-V WAGON–WITH 556 HP, SIX-SPEED MANUAL GEARBOX AND MAGNETIC RIDE CONTROL THAT ADJUSTS TO THE ROAD 1,000 TIMES A SECOND–COMES FROM GENERAL MOTORS.

CADILLAC CTS-V WAGON SPECS

Engine:	V8, 6.2 liters, supercharged, pushrods, 16 valves
Engine output:	556 hp @ 6100 rpm; 551 lb-ft @ 3800 rpm; redline 6100 rpm
Transmission:	Six-speed manual driving rear wheels (paddle auto opt.)
Curb weight:	4,398 lb
Power loading:	7.9 lb/hp
Top speed:	191 mph
Zero to 60 mph:	4.0 sec
Fuel capacity:	19.8 U.S. gal
City/highway (EPA):	14/19 mpg
Test average:	13.2 mpg
Test tires:	Michelin Pilot Sport PS2 front 255/40ZR19 rear 285/35ZR19
Standard retail price:	$62,990
Price as tested:	$69,635

Source: General Motors

that a lot of the 3,620 miles on its lifetime odometer had been logged beyond battery endurance.

A Kill-A-Watt consumption meter (about $30 from Home Depot) showed that the next overnight infusion of battery juice consumed $1.48 worth of electricity (12.91 kWh at our local utility's rate of 11.5 cents/kWh)–enough, predicted the Volt, for 36 miles. At that rate, 95 miles would cost $3.90–the approximate price of one gallon of (Chevy-specified) premium gasoline, ergo 95 "mpg" from electricity.

But these numbers don't look as impressive when you factor in the Volt's $44,680 sticker price as tested. That's a 65 percent/$17,680 premium over a $27,000 Prius, money that could buy 4,600 gallons of gas–enough to take that Prius 230,000 miles; it's 80 percent/$19,680 more than a $25,000 Jetta diesel, money that would buy 5,000 gallons of diesel to take the VW 170,000 miles. This is the downside to the technologically smart Volt in the stark context of dollars and sense. But if you want a comfortable car with a small carbon footprint, perhaps those attributes will overrule the accountant in you.

IF THE ACCOUNTANT CAN JUST BUZZ off, go test drive a Caddy CTS-V wagon before you buy anything made in Germany. The wagon part makes this car more of a hauler than you'd expect from anything that's this much fun to drive, and it makes you wonder why BMW hasn't imported the M5 wagon to the U.S. Total cargo capacity with the rear seats folded down is 58 cubic feet.

The CTS-V sedan got a warm reception in these pages (February/March 2009) and the wagon is more of a good thing. It continues to blow me away that this great car–complete with 556 hp, three-pedal manual six-speed gearbox, form-fitting Recaro seats and magnetic ride control that reads the road and adjusts to it 1,000 times a second–comes from General Motors. The American muscle car of old done right today, it packs some fearsome punch and goes around curves and drops anchor (Brembos all around) with plenty more reserves than you'll need to dip into on public roads. ■

Nigel Moll welcomes comments and suggestions at: nmoll@bjtonline.com.

THE VOLT'S STICKER PRICE IS A 65 PERCENT PREMIUM OVER A PRIUS, MONEY THAT COULD BUY 4,600 GALLONS OF GAS–ENOUGH TO TAKE THAT PRIUS 230,000 MILES.