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Executives at General Motors, the largest and apparently the most imperiled of the three American car companies, are using the Volt as the centerpiece of their case to a skeptical Congress that their business plan for a turnaround is strong, and that a federal bailout would be a good investment in G.M.'s future.

In ads that ran this week, the company said of the Volt: "This is not just a car. It's a vision of our future." Another claimed that the vehicle would "completely reinvent the automotive industry."

There is a long tradition in Detroit of relying on a single new model or technology as a silver bullet to quickly solve bigger problems. Sometimes it works — the Chevrolet Corvette, the Ford Mustang and Ford Taurus, and Chrysler's K-car lineup of compact, fuel-efficient cars in the early 1980s all gave their companies an enormous boost.

But whether the Volt can live up to its billing is already a matter of debate. And some industry analysts note that General Motors has a poor track record of introducing green technology to the market.

The Volt is a big long-term bet. New vehicles typically cost \$1 billion to develop, and the Volt requires new technology that probably inflated that price tag even more.

G.M. says the car, which is scheduled to arrive in showrooms two years from now, will be able to travel 40 miles on a charge, but it will also have a small gas engine to extend the range to as much as 640 miles using both the battery and gasoline (the 1.4 liter, four-cylinder engine is intended to run a generator that will power the car and recharge the batteries once they are depleted). It is expected to cost about \$40,000.

To some, the Volt will remain a niche vehicle until its cost drops sharply and its range rises dramatically.

“If you’re the affluent individual who wants to make a statement, it’s one thing,” said Ron Pinelli, president of MotorIntelligence.com, an industry analysis firm. “If you’re Joe the Commuter, you’re not going to spend \$40,000 on an electric car. It’s insane.”

In one exchange during the often-tense hearings in Congress for the three car companies, **Representative John Campbell**, a California Republican, questioned Wednesday whether the Volt would provide the financial boost that G.M. needs.

“The Chevy Volt may be a great car, but they’re not going to make any money with it, at least not right away,” he said.

Other lawmakers questioned whether G.M. might run short of money for the Volt without federal assistance. But G.M.'s chief executive, Rick Wagoner, said in a television interview last week that G.M. was making sure it had money to keep developing the car.

What sets the Volt apart, G.M. officials say, is that there is nothing like it on American roads, at least for now.

"We're moving from a model where the primary power plant is no longer an internal combustion engine. It's an electric motor," said Jon Lauckner, G.M. vice president for global program management. "It's a huge change in the whole paradigm of where cars have been."

Once it arrives, Mr. Lauckner said, customers will adjust more rapidly to the Volt than they did to the Prius, Toyota's hybrid gas-electric car. "I don't think that's going to be that big a deal for most people to get their heads around," he said.

"We've turned into a plug-in society. We've got cellphones, PDAs, you name it, that are all plugged in. To a certain extent, it's not much more complicated conceptually than coming in and plugging in your cellphone."

David Cole, chairman of the Center for Automotive Research, in Ann Arbor, Mich., agreed that the Volt would be a "game-changer." When it is introduced, "we can say that the invention has arrived," Mr. Cole said.

Many carmakers, including Mitsubishi, Nissan and BMW, have plug-ins under development. Toyota said last year that it was working on a plug-in hybrid vehicle that would be available by 2010, meaning it could conceivably beat the Volt. Toyota has not said whether it will sell the vehicle to the public or only to fleet customers.

G.M. does not plan to sell the Volt in all 50 states right away but will roll it out in markets that is has not yet named.

It plans to sell only 10,000 Volts in the car's first year, or less than the number Prius cars sold by Toyota in October alone. And the Volt, roughly the size of a small family sedan, will cost

around \$15,000 more than a Prius.

G.M. has not said when or if it plans to make money off the Volt.

Mr. Cole attributed much of the Volt's higher cost to its lithium-ion battery, which he estimated initially would cost \$10,000 to \$15,000 a car. But he predicted battery prices could someday be one-third that much, prompting the car's price to drop closer to \$30,000, and generating more demand. (G.M. eventually expects to sell about 60,000 annually.)

"You're never going to implement high volume until you get to future generations of the technology," Mr. Cole said.

Sales of the Prius hybrid electric car, which had its debut in the United States in 2000, bumped along for their first few years until Toyota introduced a more powerful model in 2003. They accelerated when gas prices jumped in 2005 and hit a record in 2007, when Toyota sold more than 180,000.

The Volt is not General Motors' first electric vehicle. In 1996, G.M. started leasing the EV1, an electric car, to customers in California. Although its few hundred owners loved it, the EV1 was discontinued just three years later.

G.M. reportedly spent about \$1 billion in the 1990s to develop the EV1, which it dropped after saying it could not make money on the cars. The EV1, which was available only in lease deals, sold for the equivalent of up to \$44,000 but cost G.M. about \$80,000 apiece to make.

Other efforts to earn green bragging rights have missed the mark, too. Only two years ago, G.M. promoted flexible fuel cars that run on E85, a blend of ethanol and gasoline, as the way to wean Americans off gasoline. But interest in ethanol has waned amid concerns about the environmental impact of using corn for fuel rather than food.

The company is building its largest sport utility vehicles with hybrid gas-electric power trains as well, but they have sold poorly.

In 2004, G.M. displayed a hydrogen-powered concept vehicle, the Hy-wire, at the Paris Motor Show, making similar promises that it would revolutionize the industry. Thus far, the Hy-Wire has not become reality.

David Friedman, a research director at the Union of Concerned Scientists, said he was concerned that G.M. was promising too much with the Volt. He said consumers who would benefit most from the Volt, city dwellers, might find it inconvenient since they would have no obvious place to plug it in on urban streets.

“The Volt is a risk worth taking: it’s just not a risk worth betting your whole future on,” Mr. Friedman said. “I do worry G.M. is doing it more out of image building than a focus on developing products.”

Asked whether G.M. might be building expectations too high for the Volt, Mr. Lauckner replied, “We don’t think so.” He acknowledged that G.M. has revealed far more about the Volt well in advance of production than it typically does for other vehicles.

“But frankly,” he continued, “the whole program is different, and we need some different types of people to support this program than in the past.”

Once the Volt arrives, some industry analysts said, G.M. could eventually build entire car lineups that feature the technology used on the Volt, much as Toyota is considering the idea of a separate brand with the Prius name. First, however, the car needs to make its way to showrooms.

“It isn’t what it’s going to do for G.M. tomorrow. It’s what it will do for G.M. for years to come,” Mr. Pinelli said. “It’s an investment in the future.”