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## Business Books

By Brian Dumaine

The Plot to Save the Planet By Brian Dumaine Crown Business; 288 pages Global warming is a problem that will need more than just one good idea to solve it. Dumaine, editorial director of FORTUNE SMALL BUSINESS magazine, found dozens among the entrepreneurs of the thriving green-tech industry. His new book is a lively tour of everything from green buildings and carbon-eating algae to, in this excerpt, electric cars.

### Cheaper, Lighter, Better

The players in the Nascent electric-car industry are taking different routes to market. Tesla Motors is building its \$109,000 Roadster for the Hollywood set. Moving down market, Phoenix is building a \$47,500 workaday pickup truck. For those looking for a cheap commuter car, Aptera, Tango, Think City and Zenn are all trying to meet that need with small, inexpensive electric vehicles that can be charged to cover enough miles to handle the daily commute.

These companies do not necessarily aim to grow to the size of Toyota or GM. Says Bill Green, a partner at VantagePoint Venture Partners, a venture-capital firm that has invested in Tesla Motors: "No one argues today that the Tesla will serve anything but a small subset of the market. But it has changed the conversation. The big car companies will look at Tesla and say, 'Hey, maybe I can use that technology in my cars.'"

VantagePoint as well as other top venture-capital firms are betting big on just that. What has these investors excited is that the rules of the auto industry are changing. Radical new car designs using lightweight materials and utilizing new-style power plants are becoming more affordable. Technology--computer-controlled battery packs, with power-storage systems that use nanotechnology--may soon become cheap enough to allow upstarts to compete with the Big Three.

To understand this new paradigm, I met with Steve Fambro, the founder of Aptera, the start-up that is building both a battery-powered and a plug-in hybrid lightweight commuter car. The moment of inspiration came in June 2004: the launch of SpaceShipOne. The SpaceShipOne team had access to high-tech tools that enabled the building and design of a rocket for only \$25 million--cheap by NASA standards. Could the same tools be applied to the auto industry? "The way cars are designed, half the energy they need is just to push the air out of the way," Fambro explains. "What if you changed the styling to make the drag of a car nearly equal to zero?"

The result? The Aptera's drag will be a third of an average car's and less than half of the Prius', which now has the lowest drag in the industry. Cheap technology allowed Fambro to create such an aerodynamic design on a limited budget. For \$50,000 Fambro found some off-the-shelf software--the same kind NASA uses to test the drag of its space vehicles. To keep drag as low as possible, for example, the three-wheeled car has no side-view mirrors--the driver has 180° rear visibility with the help of rear-mounted cameras. He estimates that today's computing power is so fast and so cheap that he can do "with three guys what a big company such as Boeing 10 years ago took a few hundred people to do."

Even if Fambro succeeds, the impact on the market will be minimal. He hopes to sell 3,000 to 4,000 cars the first year; GM alone produces about 300,000 cars a month. Perhaps the Aptera will be used as part of a light-rail system where the commuter will hop into a small car waiting at the train station. Or perhaps the Aptera will serve as a model for cars of the future: lightweight, great gas mileage, and loaded with computer controls.

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