**Planning for the Chevy Volt Case**

General Motors is a company in deep trouble. As car sales in North America collapsed in 2008, GM, which had already lost money in 2007, plunged deeply into the red. With losses estimated at $14 billion, the company was forced to go cap in hand to the government to beg for public finds to help it stave off bankruptcy. Fearing the economic consequences of a collapse of GM, the government agreed to loan funds to GM, but it insisted that the company have a clear plan charting its way back to profitability. Ironically, such a plan was already in place at GM. At the heart of it was a potentially huge gamble on a new type of car: the Chevy Volt.

The Chevy Volt, which is scheduled for market introduction in 2010, is a compact, four-door electric car with a reserve gasoline-powered engine. The primary power source is a large lithium ion battery (lithium ion batteries are typically found in small electric appliances such as cell phones). The battery can be charged by plugging it into a wall socket for six hours; when fully charged, it will fuel the car for 40 miles, which is less than most people’s daily commute. After that, a gasoline engine kicks in, providing both drive power and recharging the lithium ion battery. GM estimates fuel economy will be over100 miles per gallon, and charging the car overnight from a power outlet would cost about 80% less than filling it with gas at $3 per gallon. The car will cost somewhere between $30,000 and $40,000; however, because it uses a battery-powered technology, buyers will be able to take $7,500 tax credit.

The Volt was the brainchild of two men, Bob Lutz, GM’s vice chairman, and Larry Burns, the head of R&D and strategic planning at GM. Although Lutz in particular had always championed large gas-hungry muscle cars, GM’s planning told them that the market would probably move away from the SUVs that had been a profitable staple at GM foremost of the 1990s. A number of trends were coming together to make this scenario likely. First, oil prices, and by extension, gas prices, were increasing sharply. While driving an SUV that gets 12 miles to the gallon might make economic sense when gas was priced at $1 a gallon, it did not for most people when gas was $4 per gallon. GM’s planning suggested that due to growing demand in developed nations, including China and India, and limited new supplies, the days of cheap oil were over. Second, global warming was becoming an increasing concern, and it seemed possible that tighter regulations designed to limit carbon emissions would be introduced in the future. As a major source of greenhouses gases, such as carbon dioxide, automobiles powered by internal combustion engines could hardly escape this trend. Third, the cost of manufacturing lithium ion batteries was falling, and new technology was promising to make them more powerful. Finally, GM’s major competitor, Toyota, with its best selling hybrid, the Prius, had demonstrated that there was demand for fuel-effcient cars that utilized new battery technology (the Prius, however, uses a conventional fuel cell as opposed to a lithium ion battery).

Despite their analysis, when Lutz and Burns frst proposed making the Volt in 2003, other managers at GM beat them down. For one thing, GM had already invested billions in developing fuel cells, and many in the company did not want to suddenly switch gears and focus on lithium ion batteries instead. Besides, said the critics, technologically it would be difficult to produce a large lithium ion battery. Others were skeptical given that GM had already had one failure with an electric car, the ill-fated EV1 introduced in the 1990s. Powered by a fuel cell, the EV1 had not sold well (according to many because the company had not put its weight behind it).

By 2006, however, the tide had started to turn. Not only were oil prices surging, as predicted by the strategic planning group, but also a small Silicon Valley start-up, Telsa Motors, had announced that it would be bringing a lithium ion sports car to market. Lutz’ reaction was, “if a start-up can do it, GM can too!” So Lutz and Burns formed a skunk works within GM and quickly put together a Chevy Volt concept car, which they unveiled at the2007 Detroit auto show. The concept car gained a lot of positive feedback, and Lutz used this to argue within the company that GM needed to commit to the project. Moreover, he argued, Toyota has gaining major benefits from its Prius, both in terms of sales, and the halo effect associated with making a green car. This time Lutz and Burns were able to persuade other senior managers to back the project, and it was officially launched in early 2007 with an aggressive goal of market introduction in 2010.