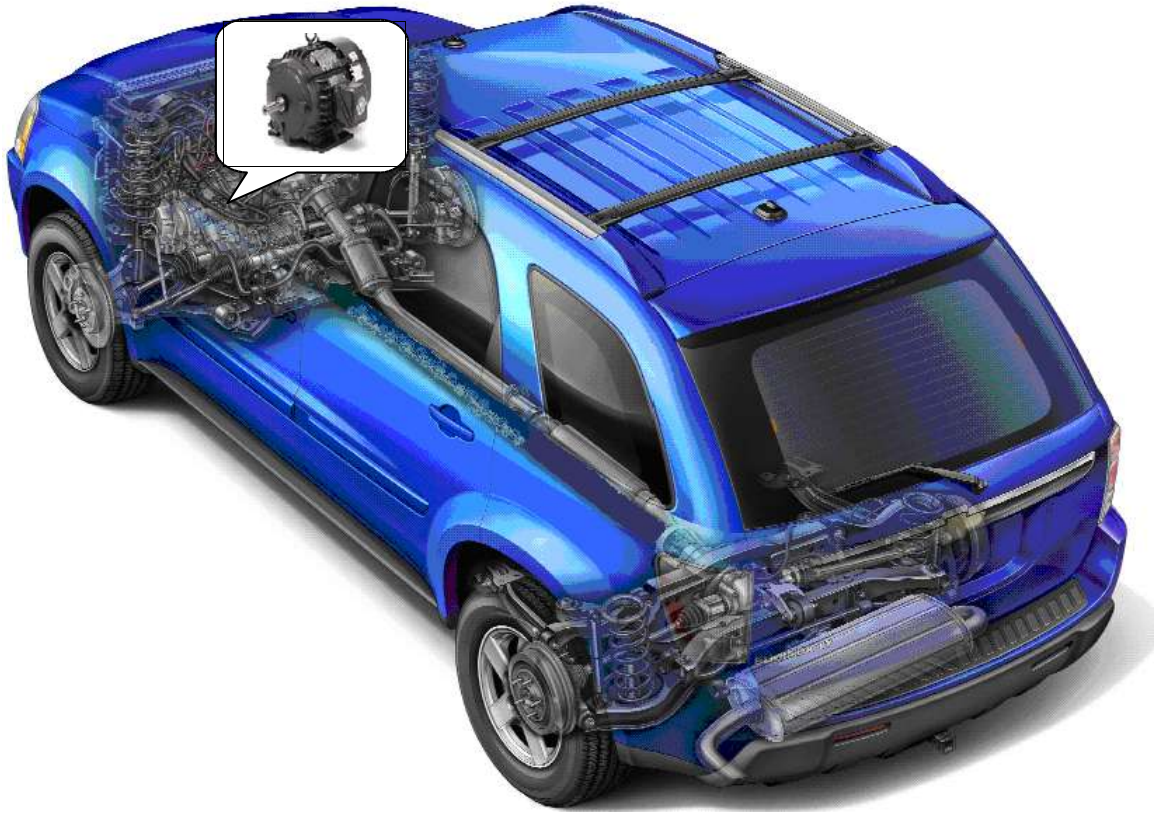


# **Business Plan For:**

**Challenge- X Electric Motor**



**Submitted to:**  
**General Motors**

**Design Team:**

<b>Michael Robertson</b>	<b>(Director)</b>
<b>Jeff Smith</b>	<b>(Hardware Engineer)</b>
<b>Dustin Ott</b>	<b>(Hardware Engineer)</b>
<b>Craig Ross</b>	<b>(Software Engineer)</b>

**Submitted to:**  
**ECE4522 Senior Design II**  
**Department of Electrical and Computer Engineering**  
**Mississippi State University**

**February 1, 2005**

## **Business Plan 1**

### **1.0 Mission**

Specialty Motors Researching is the leader in providing solutions involving Hybrid Automobiles. We also specialize in custom fitting the special applications required for converting vehicles into hybrid vehicles. The latest technologies are researched and evaluated. Numerous hours are spent modeling, using today's state of the art modeling and simulation software. The research and modeling is all done from Mississippi State Universities state of the art Center for Advanced Vehicular Systems (CAVS).

### **1.1 Objectives**

- To make Specialty Motors Research the number one provider of solutions involving Hybrid Automobiles.
- To have at least 50 customers the first year bringing in an initial gross profit margin of 25% and increasing that by 2% every year until 31% is reached.
- Achieve a growth rate of 20% per year the first 4 years until we establish 100 customers per year.

### **1.2 Keys to Success**

Our private customer base consists of the largest names in the industry. Regardless of size, we treat every customer as an opportunity to better our relationship with various manufactures allowing us to use grow in size and continue to stay the leaders in technology.

### **1.3 Target Market**

Our initial target market is any hybrid electric vehicles currently in use and any hybrid

vehicles in production. We are planning to fulfill all these customers' needs by

supplying them with the newest state of the art information. We will be focusing on

larger companies that are established the hybrid vehicle industry as well as any

smaller scale projects such as the ChallengeX competition.

### **1.4 Competitive Advantages**

Our company is based out of CAVS research center, therefore, giving us access to state of the art equipment and simulation tools. Within the company we have access to hybrid electric vehicle simulation tools such as PSAT and MagnaForce. PSAT can be used to simulate the customer's specifications to see how their specifications will perform before physical testing. MagnaForce can be used to measure and observe characteristics of different electric motors. Since our company is related to hybrid vehicle configuration advice, there are very little competitors. We also have tools to package the customer's product and to test the configuration chosen such as: cranes, dynamometers, and electronic measuring devices.

### **1.5 Basic Strategies**

In order for our company to succeed, we will need to secure proper funding through angel investors and personal resources. The funds will go toward research, marketing, customer satisfaction, and new available technologies. Every engineer will be responsible for a certain number of customers. They will also be responsible for marketing and keeping up to date on recent technological advances.

### **1.6 History**

Michael Robertson, Jeff Smith, Dustin Ott, and Craig Ross founded specialty Motors Researching in August 2004. Each of these founders saw that the car companies struggle in the latest technology of electric motors and failed to understand how to match expectations with motor design characteristics.

### **1.7 Company Services**

Our company can research any application of electric motors. Our services range from the research and testing phase to implementation. We are fully prepared to take the customers ideas and designs and model them in software so that results can be produced before ever purchasing an item. Additional services of research can lead to more efficient applications that are designed to meet and exceed the customer's expectations. Our onsite implementation lab also enables us to custom fit the design with an existing item.

## **Business Plan\_as2**

### **2.0 Start up Plan and Cost**

Because our company is located in CAVS research center, the construction of a new building is not required. However, a place in CAVS must be rented. The cost to rent the space will be rather expensive, due to the fact that a deposit will be needed to acquire use of the equipment in CAVS. The below chart is the plan for start up along with the cost for each step. The assets are also found in the below chart.

<b>Startup Expenses – first year</b>	
<b>Legal</b>	\$1,500
<b>Marketing</b>	\$10,000
<b>Stationary</b>	\$3,000
<b>Insurance</b>	\$15,000
<b>Lease at CAVS</b>	\$1,000/month
<b>Other</b>	\$5,000
<b>Total:</b>	\$46,500

**Total Start-up Requirements = \$396,500**

<b>Startup Assets</b>	
<b>Cash requirements</b>	\$300,000
<b>Total Assets:</b>	\$350,000

### 2.1 Initial Breakeven Chart

To acquire this initial investment, we are using various portions of our own capital as well as investments from angel investors. The breakdown for our investments can be seen below:

<b>Investors</b>	
<b>Personal investor 1</b>	\$56,500
<b>Personal investor 2</b>	\$50,000
<b>Personal investor 3</b>	\$50,000
<b>Personal investor 4</b>	\$50,000
<b>Angel Investors</b>	\$90,000
<b>Bank Investors</b>	\$100,000
<b>Total Investments</b>	\$396,500

Total investments = \$396,500

Total expenses = \$396,000

Total Capital = \$350,000

## 2.2 Sales Forecast and Assumptions

<b>Sales</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
<b>Customers</b>	<b>50</b>	<b>60</b>	<b>72</b>	<b>86</b>
<b>Project Consulting</b>	\$3,000/customer	\$2,000	\$2,000	\$2,000
<b>Market research</b>	\$1,000/customer	\$1,000	\$1,000	\$1,000
<b>Retainer Consulting</b>	\$2,000/customer	\$2,000	\$2,000	\$1,000
<b>Equipment</b>	\$10,000/customer	\$10,000	\$10,000	\$10,000
<b>Total Sales:</b>	\$800,000	\$900,000	\$1,080,000	\$1,204,000
<b>Direct Cost</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
<b>Project Consulting</b>	\$600/customer	\$600	\$600	\$600
<b>Market research</b>	\$200/customer	\$300	\$400	\$400
<b>Retainer Consulting</b>	\$400/customer	\$400	\$400	\$400
<b>Equipment</b>	\$6,000/customer	\$6,000	\$6,000	\$6,000
<b>Subtotal Direct Cost</b>	\$360,000	\$438,000	\$532,800	\$636,400
<b>Sales- Direct Cost Total</b>	\$440,000	\$462,000	\$547,200	\$567,600

## 2.3 Personnel Plan

	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
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<b>President</b>	\$60,000	\$60,000	\$80,000	\$80,000
<b>Engineers *3</b>	\$150,000	\$150,000	\$180,000	\$180,000
<b>Sales People</b>	\$0	\$10,000	\$10,000	\$10,000
<b>Angel Investors</b>	\$10,000	\$10,000	\$10,000	\$10,000
<b>Secretarial</b>	\$20,000	\$20,000	\$20,000	\$20,000
<b>Bank Investors</b>	\$20,000	\$20,000	\$20,000	\$20,000
<b>Subtotal:</b>	\$260,000	\$270,000	\$320,000	\$320,000

### 3.0 Product

In today's world the price of gasoline is constantly on the rise and there is no evidence that it will decline. With almost every automobile on the road using gasoline or diesel fuel the need for fossil fuels is ever increasing. A solution to decrease the dependence on fossil fuels is to develop a vehicle, which will use less fossil fuels. To decrease the dependence an alternate source of power needs to be implemented in the power train of vehicles. The obvious alternate source is to use electricity. There are a few hybrid electric vehicles on the road today, but they are built with the manufacturers specifications. At Specialty Motors Research we will integrate any vehicle with an electric motor, as an alternate source of power. At Specialty Motors Research we will research and simulate different motors and find which will give the best results according to the customers specifications. These results will be shown to the customer and a motor will be purchased according to the customer. Once the motor has been purchased the electric motor will be tested at the CAVS facility, and will then be integrated into the vehicle of the customers choice. At Specialty Motors Research we do not develop a specific product, but rather we provide a service to the customer.

### 3.1 Market Analysis

The market for hybrid electric vehicles is already growing, and as stated above growing gas prices provide the market. Fossil fuels are an impermanent source of power for transportation. Gas is nearly two dollars a gallon in Mississippi, and Mississippi is one of the lowest in gas prices. With today's drivers preferring bigger more powerful vehicles fuel consumption is at an all time high. Today's driver is also having to commute farther to work, and thereby consuming more fuel. As long as

vehicles depend on gasoline, and there is not an alternate source of power, which can power the vehicle on its own, there will always be a need for hybrid electric vehicles.

### **3.2 Market Segmentation**

The initial target market will be to complete the Challenge X competition requirements. By winning this competition, we will then be able to procure the GM equinox market. On the side and after the competition we will provide our services to other manufacturers and smaller customers, who would just like to have a hybrid vehicle.

### **4.0 Strategy and Implementation**

The initial strategy is to fulfill to the Challenge X competition requirements. Once this is accomplished we will have secured the GM equinox market. This will give our company an advantage over other competition by having won this competition. This will show our competence in the hybrid electric vehicle market.

#### **4.1 Marketing Strategy**

In order to maintain a contract with GM we will need to fine tune the electric motor we implement into the GM equinox. We will also need to advertise to the public throughout the competition, by hiring a sales and advertising consultant. We will need to build a website with completed projects and recommendations from satisfied customer. Craig Ross, our computer engineer and web site designer, will do all this.

#### **5.2 Pricing Strategy**

The price of consulting fees will remain the same as stated above in Section two. We have estimated the price of motors that will be purchased. These motors will range in price depending on the manufacturer of the motor. Of course these prices will be negotiated with customer before a purchase is made.

#### **5.3 Promotion Strategy**

As stated above our website will serve as the main tool for advertising of our company. The next step in our advertising will be to go to the major manufacturers and negotiate for their business. We will also be attending Society of Automotive Engineers (SAE) meeting in order to find smaller business as well as larger manufacturing business.

#### **5.4 Milestone**

The first milestone for the company will be to complete the necessary requirements for Challenge X. This milestone will not only give our company credibility, but will also give our company the business of GM. The second milestone for the company will be to procure another manufacturer's business. The final milestone will be to procure enough side jobs to keep the company growing as well as keep the company funded.