

Team ULV-3

Prospectus



TEAM ULV-3, DIVISION OF CTMS, INC.



Team ULV-3

Prospectus

Reaching Out

Team ULV-3 is actively exploring partnerships with industry leaders, sponsors and investors who are seeking innovative entrepreneurial projects that will contribute to the dramatic reduction in our dependence on fossil fuels and are motivated to become a part of the next generation of green automotive technology.

X Prize Background

In 1919, wealthy hotelier Raymond Orteig created the “Orteig Prize,” which offered \$25,000 to the first pilot who could fly non-stop between New York and Paris. The prize was finally won in 1927 by an unknown airmail pilot named Charles Lindbergh. Lindbergh won the hearts of a nation, and his world-changing achievement spawned a \$300 billion aviation industry.

Continuing that spirit, in 1996 Dr. Peter Diamandis announced the creation of the X Prize Foundation (www.xprize.org) and the \$10 million Ansari X PRIZE, which began a revolution in private spaceflight. On October 4, 2004, the Mojave Aerospace Ventures team, led by famed aircraft designer Burt Rutan and financed by Microsoft co-founder Paul Allen, captured the \$10M Ansari X PRIZE. The world took notice of this great achievement and the winning SpaceShipOne is now hanging in the Smithsonian National Air & Space Museum, the space tourism industry having received a tremendous boost.

The mission of the X PRIZE Foundation is to bring about radical breakthroughs for the benefit of humanity. They do this by creating and managing prizes that drive innovators to solve some of the greatest challenges facing the world today.

X PRIZES are awarded to the first team that achieves a specific goal, set by the Foundation, which has the potential to benefit humanity. Rather than awarding money to honor past achievements or directly funding research, the X PRIZE competitions incite innovation by tapping into our competitive and entrepreneurial spirits.

X PRIZE competitions capture the imagination of the public and speed radical breakthroughs that can ultimately change the way we see ourselves and how we live on this planet. The X PRIZE Foundation continues to unveil new X PRIZES in Exploration (Space and Underwater), Life Sciences, Energy & Environment, Education and Global Development and is viewed as the leading model to leverage the elements of public interest, entrepreneurial spirit and cross-disciplinary innovation to bring about breakthroughs that benefit us all.

The Competition

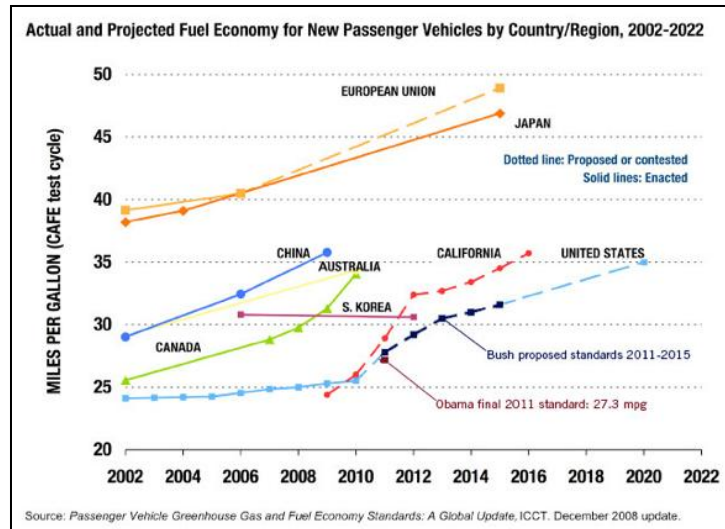


In 2008, the Foundation combined forces with Progressive Insurance to create another exciting X PRIZE. The “2010 Progressive Insurance Automotive X PRIZE” (www.progressiveautoxprize.org) challenges teams from around the world to develop a car capable of averaging 100 mpg or greater. That competition is now underway and Team ULV-3 (www.ulv-3.com), an official “Mainstream Class” competitor, is packaging their innovative Multi-Fuel, High Speed Diesel electric

(HSDe) engine design into a new 2010 Lotus Evora chassis to compete for their share of the \$10 million prize.

The Problem

The dwindling nature of fossil fuel reserves, heightened sensitivity to harmful emissions, and the continuing instability in the world oil markets require the development of new forms of transportation that are propelled by alternative fuel sources and reduce the requirement for petroleum based products. In the immediate future, fuel alternatives such as bio diesel, which is formulated from harvested sources such as corn, sugar, wood chips and other non-fossil products, are prime candidates. Non-harvested fuels such as hydrogen and liquid natural gas are also serious considerations for sources of alternative fuels. However, wide spread availability and mass distribution facilities for these products do not appear to be imminent. On-board generation of hydrogen from liquid sources shows future promise as a source of propulsion, but such systems are not sufficiently developed to be in the widely available in the near future. The current evolution of automobile propulsion systems in the U.S. is primarily based on hybrids using a combination of electric, gasoline, and ethanol technologies. Unfortunately, our dependence on fossil fuel remains predominant. Fuel efficiencies from these types of fuels are improving steadily, but slowly as can be seen from



the chart to the right. The U.S. Government recently accelerated the 35 mpg average standard from year 2020 to year 2016. These small improvements are a direct result of the modest technology advances that have been, and are projected to be, made by an automobile industry which has been reluctant to adopt more radical design changes. Specifically, there has been very little development in either fossil or bio based diesel-powered vehicles in the U.S, with only about 5% of the cars sold being diesel-powered compared to about 55% in the U.K. and 70% in the remainder of the E.U. The principle factor in the widespread use of diesel-powered vehicles outside the U.S. is the cost of fuel. In some countries the equivalent cost of fuel is on the order of \$10/gallon. The emphasis in those countries is on greater efficiency by virtue of smaller and lighter weight vehicles. Fuel economies of over 50 mpg are readily achieved by many of the cars in Europe. The recent abrupt rise in U.S. gas prices to over \$4.00/gallon in the past year gave us a strong appreciation for the problem. Much thrashing and agonizing occurred during the price run-up as U.S. consumers perceived that it was too costly to drive great distances in the typically large, heavy, and fuel wasting vehicles to which we have become accustomed. Thirsty cars were parked and pick-up truck and SUV sales plummeted. Orders for hybrids that achieve over 30 mpg rose sharply. Then as fuel prices began to recede, U.S. consumers quickly returned to their old habits. The Big Three have begun to design and build more efficient gasoline/electric hybrids that can achieve 35 to 40 mpg in the near term with modest increases anticipated in the next few years. Nevertheless, the speed of evolution to more fuel efficient vehicles is still too slow to dramatically curb our fossil fuel consumption. Additionally, the Big Three automotive companies in the U.S. continue to be poorly positioned to quickly embrace new technologies and rapidly capitalize on the many innovative advances that are available today.

There are currently three government backed electric car initiatives involving hundreds of millions of dollars to attempt to fix the U.S. gasoline addiction problem. But a significant move to all-electric propulsion brings its own set of problems. For example, 70% of electricity production in the U.S. is generated by burning fossil fuels that emit colossal amounts of CO₂ and all-electric vehicles depend primarily on this source to regenerate the batteries. Although highly publicized and brokered by various government agencies, the all-electric car has limited opportunity to succeed in meeting the needs of the American consumer. Sleek designs, unrealistic performance claims, and the mystique of driving a car that has no fuel burning engine all mask the fact that these vehicles have limited range, do little to reduce carbon emissions, and still rely heavily on fossil fuels for their propulsion. Consumer interest for them in the U.K. should be a harbinger of future acceptability. In 2008 there were a total of 178 all-electric cars registered out of a total registration of 2.1 million. Although all-electric cars may seem to be a plausible alternative mode of transportation on the surface, current evidence indicates they are not the solution.

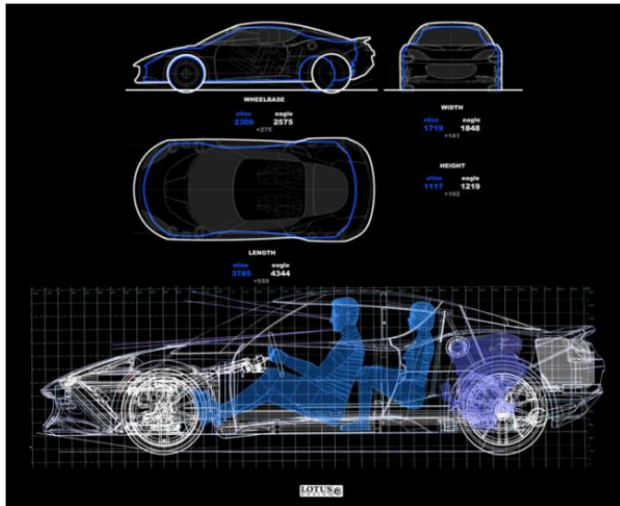
The primary road blocks to faster change in the U.S. auto industry are the enormous costs of retooling and the reconfiguration of assembly lines to accommodate new engine designs and technologies that don't currently exist in their production models. Clearly, there needs to be strategies and solutions brought to the market place that will bridge these gaps and accelerate fuel economies well above today's standards in consumer acceptable vehicles. The Progressive Insurance Automotive X PRIZE competition is just that stage for innovators to demonstrate new ideas, technologies and platforms capable of achieving significantly greater fuel economy, have mass customer appeal and are producible in large quantities.

The Concept

All vehicles require a chassis, bodywork, drive systems and a braking system as basic components. To create new designs for each of those components is a difficult, expensive and time consuming task. Furthermore, to accomplish that under the rigorous time constraints of the Automotive X PRIZE time-table is, at best, formidable. A more logical approach is to utilize components that are already available, redesign or upgrade to take advantage of the latest technologies, and integrate them into a current production chassis. To achieve the X PRIZE goals of 100 mpg, meet the rigorous demands of the safety and emissions standards, and succeed in the numerous performance tests requires an innovative platform that is a distinct departure from the vehicle designs currently available. The vehicle must also be producible in large numbers and possess qualities that will inspire customer appeal. We feel that success in the competition favors the use of a turbo-charged, small displacement, highly efficient, multi-fuel diesel engine coupled with a modest electric motor in a hybrid drive train. Additionally, a kinetic energy recovery system (KERS) will capture the energy generated during vehicle deceleration and braking. The correct application of these technologies packaged neatly in an appealing, current production chassis, is the best approach to creating a vehicle that can achieve the 100 mpg goal and attain the mandatory X PRIZE business plan requirement of a production capability at the rate of 10,000 units per year within five years.

The Approach

Recently, Team ULV-3 selected the Lotus Evora platform as their X PRIZE competition vehicle to showcase our unique Multi-Fuel, High-Speed Diesel electric (HSDe) engine concepts and automotive designs in the new 2010 Lotus Evora platform. Team ULV-3 and Lotus share a strong, common philosophical DNA and history of working with industry leaders to improve the performance of existing technologies for the automotive, aeronautical, and motor sports industries, making this relationship a natural fit.



Created by an acknowledged world leader in light-weight chassis systems and automotive manufacturing techniques, the Lotus Evora provides the team with one of the most advanced light-weight chassis design options available. We believe coupling our propulsion design concepts with the new Lotus Evora platform provides the most practical management approach to competing in a time constrained environment while meeting the Automotive X PRIZE goal “to inspire a new generation of viable super efficient vehicles that will help break our addiction to oil and stem the effects of climate change.”

Our version of the Evora will be powered by a small displacement, massed produced, high-speed, turbo-diesel engine using ULV-3 technology to operated on both bio based and petroleum fuels. The Team’s engineering staff has made several unique and proprietary design changes to the internal engine components that dramatically reduce petroleum energy consumption through innovative combustion techniques, creative engine controls, and the capability of using multiple on-board fuel sources. These modifications are augmented by a common hybrid drive train modified with a small, low voltage, DC electric motor that automatically assists the primary engine as required maintaining optimum fuel efficiency and overall performance under all driving conditions. A light-weight, race-proven, Formula One kinetic energy recovery system (KERS) will be used to capture the energy generated during de-acceleration and braking to recharge the batteries.

The Team



Chris Taylor, our Technical Director, has over 30 years experience driving, designing, building and fielding winning race cars. For this project, Mr. Taylor has hand selected a group of 20 highly qualified and dedicated automotive, engineering, business, and project management professionals hailing from 3 countries. The team is combining their talents to passionately pursue the common goal of winning the 2010 Progressive Insurance Automotive X PRIZE. At the present time, our team has invested over 8,000 hours of effort. Our dedication stems from a firm belief in what we are doing. We believe something must be done now to significantly reduce the use of fossil fuels. We further believe that within two years our engine design will be sufficiently sophisticated to operate efficiently on multiple fuels, none of which are fossil derived. From a strategic standpoint, the U.S. needs to become completely independent of the vagaries of international oil production and distribution for vehicle propulsion. Team ULV-3 firmly believes it will produce a competition vehicle that contributes to this crucial objective, while providing wide customer appeal through the Evora platform which can be readily purchased and maintained via the established network of 178 Lotus dealers worldwide.

The Vision

The period between now and start of the actual head-to-head competition in May, 2010 will be a time of vast media exposure designed to spark both industry and consumer interest. Industry will be exposed to new sources of product and business investment. We feel that entrepreneurs will see and capitalize on the opportunity to leap frog the current slow evolution of consumer transportation.

The media attention generated by this highly visible event will provide ample market exposure to attract funding partners with sufficient capitalization potential to bring this exciting technology to full production. The intense coverage for the X PRIZE event will enable consumers to focus on vehicle alternatives that are currently not available from the major automotive manufacturers. High-speed diesel engines, super capacitors, and Kinetic Energy Recovery System (KERS) that, up to now, are just technical concepts with minimum availability in the marketplace will have new meaning and perspective in the 100 mpg car. Our vision is not just to enter and win this event. The lessons learned during the competition will significantly advance our vehicle design concepts. We expect the X PRIZE competition to be an extremely valuable platform, leading to the ultimate goal of producing 25,000, Multi-Fuel, HSDe cars per year within five years. In association with Lotus, our long range business plan identifies the first deliveries of the car will be in 2012 with an initial production of 3,000 cars. Future funding will be required for the construction of a higher volume production facility in the U.S. that will turn out at least 25,000 cars per year by 2015.

Long Term Corporate Financing

To provide some prospective as to the intrinsic value of the technical and intellectual property by the conclusion of the competition one must look at related events that have taken place in the past year. A major Japanese automobile manufacturer recently opted to design a new diesel engine for their vehicle internally rather than seek external resources. The cost was \$140M just for the engine development. Other independent engine designers have recently valued similar vehicle concepts up to \$500M. A third example involves two potential builders of electric cars in the US that were granted \$465M & \$529M in government loan guarantees to build manufacturing plants in California and Delaware. By contrast, Team ULV-3 conservatively estimates the value of the design and development of the engine, drive train, and the complex proprietary system control software will have a market value of at least \$200M by September, 2011. At that time we expect to exercise one of two options. The first will be to license the technology to a car manufacturer or another party for the \$200M. This value may well be higher if continued instability in oil prices motivates the government or the private sector to push for more radical changes in fuel economy than those currently envisioned. The 35 mpg average proposed by the current administration by 2016 may be viewed as far too conservative in view of the 70-100 mpg that are achievable with the Team ULV-3 hybrid vehicle. The second choice is to exercise our 5 Year Business Plan and build a new U.S. based facility for domestic and export production.

There are two primary cost considerations in the building of an automobile factory. The first is to select a manufacturing site with state funding and attractive tax incentives. The state would be required to offer support towards the construction of a physical plant with all the buildings, shop, electrical requirements, HVAC, etc, designed to house and support all assembly machinery and production activities. We estimate the cost of this activity for our project to be \$300M and would

Progressive Insurance Automotive X PRIZE Media Exposure

One of the objectives of the Progressive Insurance Automotive X PRIZE is to provide visibility for the teams and their technologies. Over the past year, both the LOI Contenders and the competition have made a strong showing in the media.

The 2008 media relations campaign garnered significant media coverage. The vast majority of the stories have been positive and on message. From January 1 through December 31, 2008, the Prize received coverage on approximately 150 TV and radio stations across the globe, 100 national and international newspapers and 900 blogs and websites.

News of the competition was covered in 12 countries, including India, South Africa, Australia, the United Kingdom and British Columbia, although 95% of the stories in 2008 on the competition were generated out of the U.S.

The 2008 coverage equated to approximately 212 million print impressions, 299 million broadcast impressions and 650 million web impressions, totaling more than one billion impressions for the 2008 calendar year. The equivalent ad value was over \$7 Million.

Additionally, of the 1200+ stories that mentioned the Progressive Automotive X PRIZE in 2008, 88% of those stories were overwhelmingly positive and in support of the Prize.

A brief snippet of where we were featured in 2008:

- TODAY Show (Viewership: 5,620,000)
- CNBC Closing Bell (Viewership: 226,000)
- Fox & Friends. Fox News Channel (Viewership: 500,500)
- Rolling Stone
- Detroit Free Press (Circulation: 320,125)
- Associated Press (reach: N/A)
- MSNBC.com (Visitors Per Month: 30,000,000)
- Automotive News (Circulation 81,085)
- Los Angeles Times (Circulation 1,055,076)
- Consumer Reports (Circulation 4,000,000)
- NPR's On Point with Tom Ashbrook

As the competition progresses, we will continue our outreach to the media. Over the next year and a half, we expect to achieve even higher levels of visibility for the competition and our teams as they showcase their vehicles on an international stage.

require the state to provide \$80M upon contract and to offer attractive tax incentives for a 10-year period. The second consideration, which we estimate to be \$144M, is the tooling and set-up costs necessary to build and assemble the vehicles. Part of this funding also covers the Euro and US certification requirements, prototype engineering, preproduction and tooling costs. \$205M will be required for operating expenses until the plant becomes profitable. This is not a trivial expense, but will be covered by future licensing fees, loans and equity investments. If this option is exercised, production of the HSDe powered hybrid will commence in 2011 and culminate with an initial run of 3000 cars by the end of 2012. Production will ramp up to 25,000 cars per year by the year 2015.

The US plant design will benefit from expertise garnered from working in specialized manufacturing environments using cutting edge material handling and light weight automotive manufacturing techniques. The \$300M required to build the plant in the US is expected to come from a DOE loan and State funding as an incentive to locate in that state. The tooling and set up costs are, again, \$144M. Team ULV-3 is pursuing a guaranteed \$600M loan from the Department of Energy. The US facility will be designed to build 25,000 cars per year on a single shift basis to allow for growth. The JVA with existing 178 Lotus dealerships worldwide could be employed to market the hybrid diesel electric vehicle and will be staffed and trained to service the new cars. Adequate parts and sub-assemblies will be made available in sufficient quantities to meet the demand.

We invite potential investors to view the current automobile publications for the performance reports and observe the elegance and style of the new Evora chassis. Recognize that the HSDe production variant will differ in the propulsion technology and the ULV-3 consumer version will achieve an estimated 75 mpg with only a small cost in performance over the gasoline powered Toyota 3.5l V6 non-aspirated version. Team ULV-3 believes that our unique design, build and distribution approach in bringing this new car to market is well founded, will significantly contribute to the utilization of new bio fuel sources and play a major role in reducing our dependence on fossil fuels. We believe investors in this important effort can look forward to significant financial and personal reward for their participation in such an exciting and revolutionary endeavor.

Thank you for taking your time to consider this exciting opportunity. For more information, please contact the following people.

Chris Taylor
Technical Director
Team ULV-3
Email: ctms@onebox.com
Cell: 312.505.1966
Tel/Fax: 866.286.0059

John L. Geisinger
Program Manager
Team ULV-3
Email: john.geisinger@yahoo.com
Cell: 352.409.1347
Tel/Fax: 866.286.0059

"In the beginning, I looked around and not finding the automobile of my dreams, I decided to build it myself" Ferdinand Porsche