

Globally Cool Vehicles: When Only Electric Will Do

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Global Warming, Energy Independence and Healthier Air are the driving forces behind the search for alternative-to-gasoline fueled transportation. Though not as widely publicized, congestion worsens these problems by wasting fuel and generating more emissions while waiting for traffic to move. Myers Motors believes that the easiest and fastest way to zero emissions and energy independence at the least total cost for personal transportation will come through pure electric vehicles. Electric vehicles already run on zero total emissions for those getting their power from hydro, solar, nuclear and wind; this will expand to include clean coal, waves and other technologies we haven't heard of yet. Battery technology exists today to power the range requirements on over half the vehicles in America, yet electric vehicles are more talked about than made. Myers Motors' unique method for introducing electric vehicles to the American public focuses on making highway-speed electric vehicles available at a reasonable price to promote real world ownership.

Keywords: Electric vehicle, fast market entry, Myers Motors, environmental effectiveness

1. INTRODUCTION

Society faces three major environmental problems today: global warming, a desire for energy independence and the need for healthier air ... and one less obvious practical problem: congestion. Easily available and inexpensive oil-based transportation built the society we enjoy today, but cost more than anyone ever bargained. We now have the opportunity to make transportation choices that will either dramatically improve or dramatically worsen these particular challenges.

How great are these challenges? Ten years ago no one could have predicted that the general public would be so concerned that the topic of global warming would rate more than 5 million references about it would appear monthly on the web, or that it would lead to an Oscar for a former U.S. Vice President.

If the frenzy about climate change wasn't enough, no newscast seems complete without lamenting the latest oil price hike and how we'll pay for it at the pump. Overall, the debate about Peak Oil has shifted from whether it will happen to when it will happen. Additionally, a growing group of political and military experts have expressed concern about our financial and political security if we continue to rely so heavily on imported oil. Energy independence has been an election

campaign buzz word since at least 2004 with more than 200 bills containing the words "energy independence" introduced to federal legislators just this year.

Studies have linked exposure to auto emissions with asthma, emphysema, heart disease, and cancer. Reports over the last few years have shown that living in areas with heavy traffic can shorten life, and, just this year it was reported that children can experience reduced lung capacity if they live too close to heavily traveled roadways. Over \$60 billion in US health costs can be attributed to air fouled by burning oil in vehicles [].

1.1 Global warming

Our global climate maintains a delicate balance in order to support life. Large fluctuations in the temperature can cause significant damage. The basic premise behind today's concern is the trend of temperature changes that can be seen to parallel human activity since the Industrial Revolution began. As industry developed, burning of fossil fuels dumped a growing amount of emissions into the air. This process accelerated greatly with the introduction of internal combustion engine use in transportation. As the amount of emissions increased, the planet's natural ability to recycle the air and release solar heat back into space became challenged, especially as more and more forests were removed to make room for sprawl. This led to an increase in the atmospheric concentration of carbon dioxide greater than 30%, keeping the sun's heat closer to the Earth [].

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While the plant has experienced historic temperature extremes, it is uncertain how long it took for those changes to develop or how great the fluctuation was. These changes have also never happened with such a large human population in place. A few of the crises experts predict may accompany temperature rises include:

- o Increasing frequency and severity of heat waves
- o Increasing frequency and severity of storm systems
- o Increased desertification
- o Declining availability of freshwater
- o Decreased food production
- o Rising sea levels and coastal flooding.

The areas with the poorest populations will likely suffer the most from these changes [].

Careful reduction and rapid of the amount of carbon and other greenhouse gases discharged into the air may mitigate the effects of climate change. However, the longer actions are delayed by debate, the more devastating the damage may be.

1.2 Energy Independence

Two-thirds of the oil used by Americans is devoted to transportation. America only needed to import 19% of its crude oil in 1960. In 2006 it imported over 70% [], effectively obtaining every drop of oil used for transportation from overseas. Because 99% of American transportation relies on oil products, a disruption in supply would ripple throughout its economy as individuals are unable to reach their employment.

While our neighbors Canada and Mexico are the two largest oil suppliers, approximately one-third of our imported oil comes from regions that are politically unstable or unfriendly toward America []. The June 2006 threat by OPEC to reduce investment in new oil production, driving prices upward, in response to the U.S. developing biofuel as an alternative fuel source [] is one example of the threat imposed by depending on other nations to supply such a vital resource.

In addition to relying on foreign sources for oil, oil-dependent nations risk financial problems and social disruption if the oil supplies are disrupted by severe weather, such as hurricanes, or terrorist actions that may destroy the oil supply chain. Even routine maintenance that takes refineries off-line for a few weeks can drive up the price of oil products.

The push to develop vehicles based on domestically produced energy stems from the realization that it would bring stability to the American transportation system as well as reduce the national trade deficit by approximately 30% [].

1.3 Healthier Air

The California Air Resources Board 2004 report that stated “This impact of vehicle-related pollution on children’s lung function is likely to have life-long adverse health [consequences] [].” Gasoline-powered and diesel-powered vehicles emit a host of chemicals that impact animal and human health. The impact of these pollutants is so great that the U.S. EPA actually states “[d]riving a private car is probably a typical citizen’s most “polluting” daily activity [].”

The following table links typical vehicle emissions with the health problems associated with each.

In addition to these chemicals, autos emit particles small enough to bypass the body’s natural defense. Smaller than 2.5 micrometers in diameter, these emissions have been shown to increase hospital admissions for respiratory illnesses, including asthma, bronchitis, and pneumonia. Risks are higher for people living in close proximity to heavily traveled routes [].

1.4 Congestion

More than 91 million people choose to drive to work alone, overflowing roadways with vehicles transporting mostly empty seats []. Single occupancy continues after work as well since the driver goes alone for 38% of all personal vehicle trips taken. This trend has gained 11 percentage points over the last 20 years and carpooling dropped 8% over the same period []. The increase in single-occupant travel has driven urban vehicle miles traveled up by 168% since 1980, leading to more congested roadways [].

Solo drivers using vehicles designed for multiple occupants contribute to congested roadways, escalating lost productive time, wasted fuel, and pollution. This congestion was estimated by The 2005 Annual Urban Mobility Report published by Texas A&M University to waste nearly 4 billion hours, to burn more than 2 billion gallons of excess fuel, and to lose slightly more than \$63 billion because of congestion delays in 2003, just in the 85 urban areas studied [].

Increased congestion leads to demands for more roadways and parking facilities to meet the needs of the driving public. However, building additional impervious surfaces alters soil absorption of rain and adds stress to drainage systems. This can lead to flooding in areas and increased soil erosion. Run-off from roadways that have been treated for ice can make its way into groundwater impacting plant and animal life.

These problems point to the need for vehicles sized to meet realistic driving patterns, especially in households having multiple vehicles.

Chemical/Chemical Family	Associated Health Problems	Other Problems
Hydrocarbons	Irritates eyes	Contributes to ground-level ozone
	Damages lungs	
	Aggravates respiratory problems	
	Potential to cause cancer	
Nitrogen Oxides (NOx)		Contributes to ground-level ozone.
		Contributes to acid rain production
Carbon Monoxide	Reduces oxygen flow	
	Can induce chest pain for people with heart problems	
	Can impair exercise capacity	
	Can reduce visual perception and manual dexterity	
	Can limit ability to perform complex tasks [i]	
	Can impair learning	
Carbon Dioxide		Greenhouse gas contributing to global warming

Table1: Health Problems Associated with Specific Automotive Emissions

2. REASONS EV's SURPASS OTHER ALTERNATIVE-FUEL TECHNOLOGIES

2.1 Alternatives

While eking out a few miles per gallon improvement on current automobiles is a step in the right direction, it is too small to make a credible difference in the challenges we face today. Hybrid electric systems provide a greater mileage boost than simply improving IC engine efficiency, but ultimately remain oil-dependent. They may have a place as a bridge technology, but, especially in light of available alternatives, do not provide any long-term hope for our transportation system.

Plug-in hybrids offer promise for long distance driving, but still use oil-products. They tap into the power grid and can reduce oil use, but are not necessary for daily driving. However, the additional weight from gasoline, the internal combustion system, and exhaust components carried by hybrids make them less energy efficient than a battery-powered electric vehicle, especially for daily driving.

The naïve assumption that if a product begins as a crop it must be good has led to unquestioning public acceptance of biofuels as a viable alternative to break our dependence on fossil fuels and reduce air pollution. However, current methods of producing biofuels can have the opposite effect. While it is true that the carbon

released from burning biofuels is cancelled by the growth process, some countries are destroying forests in order to develop land to grow the crops needed for processing into fuel. In addition, current farming methods require a great deal of oil use for farming equipment, transportation, and fertilizers – effectively shifting the oil use and reducing it to a lesser extent than the public generally understands.

Recent discussions point to the deficit in carbon sequestration when countries choose deforestation to make room for more biofuel crops. Not only do biofuels perform worse in capturing excess carbon, deforestation releases huge amounts into the atmosphere. Mac Post, a biofuel expert at the Oak Ridge National Laboratory, agreed saying, "If you're clearing high-content ecosystems to offset CO2 emissions, you're digging a hole. By what I can tell, it's a pretty deep hole, and you may not climb out" []. Indonesia illustrates this as the current worst case scenario because it has quickly become the "third largest producer of carbon emissions" by clearing large areas of rain forest and using chemical fertilizers [].

The potential for increased profit financial gain by planting crops desired for biofuels also forces farmers to make a precarious choice: grow fuel or food? A September 2007 report published by the Department of Energy's Energy Information Administration stated that

[T]he competition for arable land that would result from increased corn production at the levels needed to satisfy the 25-percent RFS could significantly raise all food and feed prices in the United States. The current generation of corn and soy biofuels crops are grown almost exclusively on prime agricultural land in the Midwest. It is not clear that sufficient land resources would be available for large-scale expansion of corn and soybean cultivation, given the intense competition with conventional agricultural products for arable land [].

The rising price of a gallon of milk already highlights the competition between biofuel crops and food production for the limited amount of fertile land available. The BBC's Jeffrey A McNeely made this observation:

The grain required to fill the petrol tank of a Range Rover with ethanol is sufficient to feed one person per year. Assuming the petrol tank is refilled every two weeks, the amount of grain required would feed a hungry African village for a year [].

Despite the noble thinking driving the biofuels industry, it can only become sustainable if production of the fuels:

- o Does not challenge food supplies
- o Does not increase water demands during the growth or refining process
- o Does not lead to depletion of soil nutrients or erosion
- o Does not require deforestation to "create" more arable land
- o Does not disturb natural habitats
- o Does not require petroleum products in the cultivating, harvesting, processing, or transporting of the vegetation or completed fuel product
- o Can be profitable using fair labor practices for everyone from the field to the pump
- o Can be made from plant indigenous to the region or
- o Can be grown in areas that do not grow vegetation under normal circumstances

In other words, if you can make the desert bloom without irrigation depleting other water sources and create fairly administered, well-paying jobs at every level of production, biofuels may be a viable option to replace a small percentage of our transportation needs. But even then, in order to replace American oil use with ethanol at the expected increase in fuel demands by 2050 would require planting 1.7 billion acres, or approximately 90% of U.S. soil [].

Hydrogen can be used either by a specially designed internal combustion engine or with a fuel cell that converts the hydrogen into electricity through a chemical reaction. No harmful emissions result in using hydrogen in either case. The public generally hears

reports of how hydrogen can be split out of water using renewable energy sources. However, because this process is so inefficient, almost all of today's hydrogen production is made from natural gas. The methane in natural gas releases carbon monoxide and hydrogen when mixed with high temperature steam.

According to the U.S. Department of Energy's hydrogen website:

The long-term vision of the hydrogen economy will take several decades to achieve. Initially, government will play a key role in conducting the R&D to achieve the "technology readiness" needed to allow industry to make decisions on commercialization in the 2015 timeframe.

The DOE admitted that the technology will be ready to start making decisions about commercialization in 2015. In other words, industry can begin deciding on how to implement wide-scale commercial usage of hydrogen – if the technology is ready. Both water electrolysis and natural gas production of hydrogen fail as a supply wide-spread use as a transportation fuel. Water electrolysis loses a significant amount of energy that could be stored in batteries and drive an electric vehicle much further than the resulting hydrogen could. Natural gas production of hydrogen has carbon monoxide as an emission. In either case, massive infrastructure needs developed in order to deliver the hydrogen to consumers and vehicles may not be commercially profitable for quite some time. We cannot afford to wait nearly a decade before taking steps to change transportation. The eminent pressures of global warming, the cry for energy independence, and the need for healthier air demand that we take action now.

The quickest and most effective way to tackle the threats facing us today is to jump as quickly as possible to fully electrified vehicles for the majority of our daily driving needs.

2.2 Environmental Effectiveness

Well to wheel studies published in 1999 by the Argonne National Laboratory compared the total emissions of electric vehicles to gasoline-powered vehicles from mining fuels all the way through driving the vehicles. This study demonstrated that for electric vehicles (EV) the overall emissions plummeted by nearly 90% when compared to gasoline-powered vehicles (GV), even when using a relatively "dirty" power grid to charge. The most dramatic changes occurred in the urban setting where overall EV emissions dropped by 15.59-100% compared to GV. When averaged across the country, the level of every pollutant measured decreased significantly except nitrous oxide (NOx) and sulphur oxides (SOx) []. While both of these levels increased using the pre-1999 technology, better controls at power plants since then had cut emissions of NOx by 30.9% and the major SOx measurement, sulphur dioxide, fell 16.9% by 2005,

despite a 9% increase in electricity production since the report was published [].

Additionally, renewable energy sources such as solar, hydro, or wind power can utilize EVs better than any other technology currently available. Channeling the electricity from the renewable source to the batteries and then directly to the electric engine is more efficient than using the electricity to process either biofuel or hydrogen. While wind power has been maligned as unreliable because it is only abundant at night, trickle charging EVs while the owners sleep creates a synergy that leverages the best of both technologies.

2.3 Ease of Implementation

Electric vehicles (EV) require far fewer parts than internal combustion engines. EVs do not need to be made from materials more resistant to corrosion, as with biofuels and today's EV technology can meet the majority of daily driving needs and be updated with advanced battery systems as they become available. The major challenges facing EVs are:

- o Overcoming public misinformation on EVs,
- o Building general consumer confidence in EVs,
- o Building a steady supply stream of components,
- o Reducing the price of those components and manufacturing, and
- o Funding the exorbitant cost of preparing a traditional car for market.

The biggest constraint on EVs is the cost of production. The current expense of building an electric vehicle should come down naturally as a demand is built and utilities of scale allow for more cost-effective building techniques. The high cost of production hampers the ability to build enough volume to bring down costs. As fuel costs increase and public awareness grows, the demand for EVs should grow through natural market forces. Financial incentives from local, state, and federal governments can accelerate the process, however, our representatives need to be educated in the advantages of pure electric vehicles. The EV industry also needs to lobby those representatives effectively to counter pressure from traditional auto manufacturers.

In any case, it will be easier to bring the cost of a \$30,000 electric vehicle down to the \$15,000 price range consumers want than to bring the \$1,000,000 cost of today's fuel-cell vehicles down to the \$20,000 range consumers may find acceptable.

Electric vehicles also have the advantage of plugging into an infrastructure as familiar as recharging a cell phone. While some manufacturers may promote rapid charging systems, most offer charging on the 110 or 240 volt outlets already found in homes. On the other hand,

most cars sit over 22 hours per day and so a rapid charging system isn't needed unless the goal is to make an electric vehicle operate exactly like a car. For the vast majority of how people use their public transportation, long charging times, while the driver is at work or home, are more than sufficient.

2.4 Fast Market Entry

Traditional automotive companies have several advantages. They have vast financial resources and decades of process development that newcomers find difficult to challenge. Most of the alternative transportation technologies under discussion still require years, if not decades of development before being offered. Electric vehicles that meet the majority of daily driving needs are available today and can be offered wide-scale as soon as the purchase price comes down to meet the average consumer's budget.

One of the greatest challenges is the cost of meeting regulations for four-wheeled vehicles so some manufacturers offer low-speed electric vehicles to develop the market. Their acceptance for close-to-home trips in small towns and golf course communities is growing. However, most drivers need a highway speed vehicle to commute on a daily basis.

One method of introducing highway speed vehicles is to develop three-wheeled electric vehicles that are recognized as three-wheeled motorcycles. This category of vehicle does not require as stringent of safety testing before being allowed onto roadways. Developing high-quality three-wheeled electric vehicles for highway use also allows for rapid market entry and real-world testing of new technologies as they are developed.

2.5 Lowest Cost

Government and private investors have already channeled billions into hydrogen research and development without being able to offer consumers a viable alternative. Biofuel costs are growing because our current pipeline system cannot withstand the corrosive nature of ethanol. Remedying this problem will require building an entirely new pipeline system. Plant growth is season dependent so producers will need to find a way to store biomass until it is needed for refining, or find a method to store the completed product without a great deal of loss to evaporation – both additional infrastructure expenses.

Electric vehicles are available today without developing a wide-spread infrastructure. The \$94 million dollars slated in 2005 to build 24 hydrogen fueling stations in California could have been used to offer \$5,000 incentives for the purchase of electric vehicles instead. If that had happened, the 18,800 new EV drivers could be saving gas to the tune of approximately 8,950,435 gallons a year. The cost to

place the same number of fuel cell vehicles on the road? Just under \$19 billion [].

Expanding that principle to Department of Energy's EERE FreedomCAR and Vehicles Technologies (FCVT) Program budget further demonstrates the practicality of EVs. Over \$396 million dollars were budgeted for years 2004 through 2007, with an additional \$126.6 million requested for 2008 []. This total of \$522.9 million dollars could have provided \$5,000 incentives for 104,580 new EVs.

While the gasoline-gallon equivalent costs of ethanol and hydrogen continue to rise, developments in renewable energy systems and increasing economies of scale promise to drop the cost of renewable energy. Electric vehicle drivers can have truly zero-emissions vehicles. As demand drives down the initial purchase cost of EVs and batteries, the total cost of ownership for an electric vehicle could become less than the total cost of ownership of a traditional gasoline-powered vehicle.

In contrast to the financial burden of developing these complex infrastructures for biofuels and hydrogen, the existing electric power infrastructure has enough excess resources to power 84% of cars, pickup trucks, and sport utility vehicles in the United States. This would save the equivalent of 6.5 million barrels of oil daily – just over half of the amount of imported oil [].

3. ELECTRIC VEHICLES HAVE A BRIGHT FUTURE

The future for electric vehicles looks bright from here because environmental, political, environmental, and health concerns are demanding a change be made now. No other technology is poised to take the lead as quickly as electric vehicles. Existing technology and battery systems already meet the majority of daily driving needs. The available smaller vehicles meet the needs over 91 million commuters who choose to commute to work and school alone each day.

The future is also bright because multiple media outlets continue to focus on the stated problems and what changes need made to generate improvements. The multiple stories presented on alternative fuel vehicles each week educate the public of coming options and demand is increasing. Manufacturers will have no choice but to find a way to offer consumers what they demand, forcing steps in the right direction. Additionally, driving an environmentally friendly vehicle has become a status symbol, which will increase demand as well.

The future also looks bright because ramping up production to meet the growing demand will require developing mass production techniques and a supply stream that will ultimately lower the costs of making, and buying an electric vehicle. Dropping prices and

positive consumer experiences will drive even more growth. When the total cost of owning an EV rivals the total cost of owning a traditional oil-powered car, the market for EVs will mushroom.

3.1 The Technology Meets Today's Driving Needs

The average driving range of an electric vehicle using lead acid batteries remains around 30 miles. While this does not cover taking the family on vacations, over 60% of households already have two or more vehicles [], and many of the second vehicles are used primarily for one person's individual commuting. With an average commute of 12 miles to work and parking the vehicle for the eight hour work day, he or she has ample charge left for the evening commute. An even better scenario exists if the employer offers the ability to recharge at work, allowing employees to have a full 30 miles of driving range when they leave. In that scenario, the lead acid batteries range increases to up to 60 miles daily.

But lead acid batteries are just the beginning. The great production electric vehicles of the 1990s proved the efficacy of nickel metal hydride (NiMH) batteries. Drivers reported ranges up to 150 miles for an EV1 and some have put nearly 100,000 miles on the original battery pack. Lithium ion batteries promise ranges approaching 200 miles and long life. Both of these technologies cost considerably more than traditional lead acid batteries, but recent variations on chemistries show promise of reaching the goal of longer ranges, reduced price, and extended battery life.

3.2 Growing Publicity Increases Public Demand

The movie "Who Killed the Electric Car" reawakened the general population to the world of electric vehicles. The media promoted the controversy stirred by the movie on every network and EV drivers became local heroes when they drove their EV to the theater where it was playing. General Motors responded to the allegations in the movies by fanning the EV flame with announcements about their proposed plug-in hybrid, the Volt. The momentum grew as other large manufacturers announced their plans, and current EV manufacturers enjoyed the attention.

Additional media attention focused on changing laws to accommodate low-speed electric vehicles on public roads. A test drive in America's only affordable, all-electric, highway legal (75 mph) available for delivery today vehicle, the NmG, blows away any misconceptions about EVs being slow or unwieldy.

The Myers Motors experience has been that every customer receives a call from their local media within a week or two of the delivery of their NmG leading to calls and e-mails from people who have seen the coverage. The uniqueness of owning a highway speed electric vehicle has resulted and will continue to result in media

exposure until they become commonplace.

The chicken or the egg dilemma effects electric vehicle production. Many consumers state they would buy one if they could pay a price comparable to gasoline-powered vehicles. The current high prices keeps the demand low enough that many EVs are hand built using expensive special order parts. Equipment manufacturers cannot afford would need to guarantee a steady supply of certain components without the funding in place to manufacture larger quantities. This cycle keeps the EV price elevated and suppresses demand.

However, as investment in the EV industry grows and reduces the price, the demand for EVs will increase. The growing industry will be able to support increased production of specialty parts and encourage research that will improve the entire industry. As the practicality of EVs becomes widely apparent to consumers, fair market forces will determine the value of EVs in a way that sustains the supply stream of components to meet demand.

4. THE MYERS MOTORS' UNIQUE METHOD FOR INTRODUCING ELECTRIC VEHICLES TO THE AMERICAN PUBLIC

The current methods other manufacturers use for making electric vehicles more widely accepted range from lobbying for low-speed vehicles on public roadways to building high-end sports cars with a price tag to match. Myers Motors takes another approach starting with how consumers actually use vehicles. Myers Motors also strives to price vehicles as fairly as possible and connect interested consumers with our ownership network.

4.1 Start with How Consumers Actually Use Vehicles

Most vehicles are designed with one purpose, transport as many individuals and items as far as possible on every trip. This design had merit when owning a private vehicle was a luxury and owning more than one was almost unheard of. However, today 60% of households own two or more vehicles leading to 91 million drivers (79.4% of workers) traveling alone every day [1], usually in vehicles designed to carry four to seven passengers. It is an inefficient use of energy to transport that much vehicle, it is also highly wasteful. Even in electric vehicles, a full-sized vehicle requires more energy to drive than a lightweight vehicle designed for one or two people. A look at the typically less congested HOV lanes compared to multiple lanes of single occupant traffic further emphasizes the practicality of single occupant vehicles.

While single-occupant travel has driven urban vehicle miles traveled up by 168% since 1980, the urban road miles only grew by 51% during that time creating even more congestion [2]. Robert Q. Riley points to many

studies linking smaller vehicle size with reduced congestion in his book, *Alternative Cars in the 21st Century: A new personal transportation paradigm*. According to Riley, including a small percentage of half-length cars in a free-flowing traffic arrangement, such as the expressway, increased capacity by at least 10%. He also stated that computer modeling showed up to a 70% increase in capacity within cities where traffic signals influence the flow [3].

Switching to smaller vehicles for daily commutes into urban areas can also reduce the need to create additional parking lots and structures. Designating 20% of parking spaces to smaller vehicles can yield a 30% increase in available spaces. The number of spaces can more than double by switching 67% of spaces to two-thirds-width vehicles. The savings would be even greater by changing parking lot rows to accommodate half-length vehicles as well.

The benefits of reducing the amount of land necessary for parking can be a financial boon for a community, as well as allow land to be targeted for more practical use. The money saved by not building yet one more parking deck can cover the costs with repainting parking lines in existing structures, or finance incentives to switch to smaller vehicles, or pay for enforcement when greedy drivers monopolize multiple spaces. Additional savings achieved by not paying for additional staff and maintenance fees for new decks can also be used to provide charging stations for EVs or preferential rates for drivers using smaller vehicles. Of course, municipalities could also pass the savings along to taxpayers by not raising taxes in order to pay for more decks.

The abundance of multiple vehicle ownership and single-passenger trips, wasted energy, and severe congestion problems all indicate that society is ready for smaller, task specific vehicles.

4.2 Price Vehicles as Fairly as Possible

Another part of Myers Motors' plan is to provide highway-speed vehicles at a relatively affordable price. While current production constraints force the cost for all highway-speed vehicles to exceed average gasoline-powered vehicles, our goal is to reduce our costs as quickly as possible. This will allow us to offer practical electric vehicles at a price the general population can afford.

Offering EVs at a price that competes with gasoline-powered vehicles will bring the greatest benefits by empowering individuals to take responsibility for how their transportation affects the world around them.

Just as Henry Ford opened the door of car ownership to the masses, Myers Motors strives to make electric vehicles financially competitive for average individuals.

4.3 Connect Interested Consumers with Ownership Network

Myers Motors vehicles have been in production long enough for our customers to have real-world driving experience. This network also allows people to see Myers Motors vehicles in use on their local streets. Not only are most of our drivers excited about the idea of sharing their experiences on our website, when prospects approach Myers Motors and want an unbiased opinion, many of our drivers will gladly talk to them and answer their questions. Our ownership network allies with us in educating the public about electric vehicles in general, and Myers Motors in particular.

4. CONCLUSION

Transportation plays a more important role in our future than how to get from Point A to Point B. Oil-based transportation pours contaminants into our atmosphere that contribute significantly to our climate crisis. America has placed itself in a precarious position politically and financially by allowing 99% of our transportation to depend upon a substance that we must import. This is especially true given our dependence on foreign entities that do not support American ideals. Additionally, breathing the fumes from gasoline- and diesel-powered vehicles results in health problems for many adults and risks the development of our children who live closest to busy roadways. We exacerbate these problems by choosing to drive oversized vehicles that contribute to congestion and hog energy to transport typically just one person.

Several alternatives have been offered and each has developed a following. Stricter mileage standards, hybrid electric vehicles and plug-in hybrid electric vehicles reduce oil consumption a little, but fail to provide substantial change. Biofuels appear green, but current production methods may actually worsen the problems targeted by their use. Hydrogen-powered vehicles may become a boon to society in the future, but current hydrogen productions do not do enough to reduce emissions. Plus, we cannot afford to wait until hydrogen vehicles become commercially viable to make the changes necessary. Only electric will do because they are ready now, they do not require massive infrastructure development for refueling, electricity production is becoming cleaner, and today's vehicles will be to incorporate power storage advances as they become available.

As a global society, the path we choose will influence every aspect of our lives, the quality of the air we breathe, the stability of our weather patterns, the cost and availability of our food, and our children's health. We need to choose wisely.

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