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Early Investor Information

Background

Worldwide, there are estimated to be about two billion bicycles. The market niche of Neodymics is not in the electric bike market as such, but rather as an upgrade to existing bikes to convert them quickly and economically to electric bikes. We call our invention the Cyclemotor, and it can be viewed as an after-market product.

Rather than viewing the market for the Cyclemotor as competing with electric bikes, it is seen as complimentary to conventional bikes, and capable of being sold to the vast numbers of bike owners. This view stems from unique, patent pending features of our product, which allow instant and simple installation or removal without altering the existing pedaled drivetrain. Although the number of potential customers is not two billion, it is far greater than for buyers of dedicated electric bikes.

Problems associated with America's use of fossil fuels are well known. These include global warming, economic instability, urban pollution, and political embarrassment. What is not apparently well known here is that an electric bicycle will operate very efficiently at average urban transportation speeds (20 to 25 miles per hour). When compared to automobile use, the improvement in energy efficiency is about twenty-five fold. This is being realized in China, where electric bicycle sales increased from 12 to 17 million or more between 2005 and 2007.

Worldwide personal transportation cannot follow the same model we have in the US. Historically inexpensive gasoline made it possible for us to use unnecessarily heavy four wheeled vehicles for individual daily travel. Several trends make this unlikely to occur in much of the developing world, and increasingly uneconomical here. Oil production is increasingly resource-limited, while demand and population continue to grow. Oil production infrastructure is a vulnerable target for those who wish to disrupt the flow of this strategic commodity. Political instability is increasing in major petroleum exporting regions. Manufacturing and service jobs are being transferred from wealthy developed nations to the developing world, promoting a rise in third world per-capita income. Bicycle commuting remains common in developing nations. People are moving or being born into expanding cities with worsening air quality. A scientific consensus has emerged that global warming is occurring as a result of burning fossil fuels, with dire consequences in store for future generations. All of these trends point to increasing demand for light electric vehicles.

An internal combustion engine converts chemical potential energy into thermal energy and mechanical work. Electrical energy is a highly organized form of energy, which is very efficiently converted to mechanical work by an electric motor. Relative to chemical energy, electrical energy is very difficult to store. Hence, when comparing to conventional transportation options, the battery is the weak link in any self-contained electric transportation device. Taking the difference in motor conversion efficiency into account, the equivalent available mechanical energy per unit mass of fully charged nickel-metal hydride batteries is about 2% that of gasoline. So, electric vehicles are most attractive in applications with modest energy requirements. Light, low speed vehicles for short range personal travel are ideal. Average speeds encountered in urban travel are frequently near 20 MPH, and our prototype Cyclemotor will travel faster than a car through Madison's isthmus at rush hour.

How Neodymics' Cyclemotor will Address Customer Needs

In evaluating the purchase of an electrically powered bicycle, one has a choice between upgrading an existing bicycle or purchasing a dedicated powered bicycle. The upgrade will be less expensive, but upgrade "kits" currently on the market consist of separate motor, control and battery. With several clamps and cables, these take time to install and are not easily removed. Our self-contained Cyclemotor instantly snaps on or off the bicycle, thus retaining the cost benefits of not purchasing, storing, and maintaining an additional vehicle. It can be installed on the bicycle already owned, or even shared within a family owning several bikes. Conversion between the assisted propulsion and original bicycle formats can be routinely accomplished, for riding style or utility variation. Neodymics' Cyclemotor leverages the truly vast pool of about two billion existing bicycles.

Neodymics patent pending design answers the needs of consumers in ways superior to other products. These include the following:

1. Installation is instant, and can be completed in less time than required to mount a bicycle on a car rack.

2. Removal for charging, security, or protection from the elements is just as easy.

3. The bicycle center of gravity is moved closer to the pavement for better handling than other motorized drives.

4. Original aesthetics of the bicycle are unchanged. The original drive train is not altered, so that pedal propulsion is always possible. The commuter can bike to work with assistance from the motor, and work up a sweat by choosing to return home under their own power. The "weekend warrior" can conveniently replace the drive system with original bicycle wheel.

5. Stand alone unit is inherently reliable, replaceable, and serviceable. It can be shipped via UPS or FedEx. The number of electrical connectors is reduced.

6. Above features available in a device providing power and range equal to the best dedicated electric bicycles, and at a lower price. This means moped-like performance, with reserve power for climbing the steepest hills without raising the rider's heart rate.

7. Suspension isolates the rider and bicycle from shock due to roadway imperfections.

8. Design is transferable to other powerplants and energy storage means, and can take advantage of technological developments completed by others.

US Market Analysis

US Bicycle, Scooter and Electric Bicycle Sales (Estimates, in Thousands)

Year	2002	2003	2004	2005	2006	Total Ownership
Bicycles		18,500				175,000 (2004)
Electric Scooters	350	1,500	2,000	1,800	2,000	8,000 (2006)
Electric Bicycles	10	15	25	100	120	300 (2006)

Source for above statistics: Electric Bikes Worldwide Reports, 2002, 2004, and 2007 Editions.

US electric bicycle sales have grown rapidly in recent years. Neodymics web site statistics suggest that some of these persons will purchase our Cyclemotor device if priced between $500 and $1500. It is not possible to manufacture our Cyclemotor in the US without exceeding this price. However, overseas manufacturers have been contacted and preliminary indications are that production quantity costs will be several hundred dollars per unit.

Recent rapid growth in the electric scooter market probably will not be sustained, due to safety and legality issues. However, electric bicycles are becoming more widely accepted, as the Consumer Product Safety Commission has classified electric bicycles as bicycles, provided that top assisted speeds do not exceed 20 MPH, total propulsive power does not exceed 1 HP, and the vehicle includes fully functional pedals. Electric bicycles appeal to the urban commuter, the environmentally conscious, the frugal, and the aging bicyclist wanting a little help up the hills. Electric scooters have been popular among children. As this population ages and comes to terms with limitations of electric scooters, electric bicycles will appear attractive to many of them. We believe that existing electric bicycle sales are much less than what may be achieved with a well designed and marketed bicycle upgrade package. Neodymics Cyclemotor can help to positively alter the way people routinely travel intermediate distances, especially with a strategic marketing alliance with a major retailer.