

## **MOTORINO – Leading the Way in the Light Electric Vehicles Industry**

The #1 topic in many headlines of the US media this past year has often been about two major interrelated news stories. First we saw how the recent surge of gasoline prices caused widespread economic pain and hardship to consumers heavily reliant on gas-guzzling cars, trucks and SUVs. And consequently, the public has finally become aware of the urgent need to find new ways to rapidly shift the economy over to applying Green technologies and alternative energy sources to help protect the environment instead of continuing to use dirty fossil fuels that emit so much pollution. While everybody else feels worried and concerned about these important issues of our times, Steve Miloshev is finally basking with satisfaction and optimism. That's because he's the owner and engineer behind Greenwit Technologies, the company managing research and development of the superior Motorino™ brand of Light Electric Vehicles (LEVs).

Sales of Motorino electric scooters skyrocketed so rapidly this past year that it was a major challenge for his company to keep up meeting with rapidly escalating consumer demand. After 6 hard long years of persistently toiling on the verge of bankruptcy, his stubborn diligent work of concentrating on advancing the technology to improve on both performance and quality is finally starting to pay off. Container loads of Motorino LEVs have been arriving at the docks practically every week since he introduced recent changes and innovations in Motorino models at the beginning of the year, most of them already pre-sold in advance by dealers. As a result, Greenwit's total annual sales volumes were well over double what they were last year, and are looking even rosier for the future.

Today the Motorino name brand stands for the latest in state-of-the-art technology among LEVs produced specifically for the North American market. Based in Vancouver BC and sold out of E-Ride franchises and Motorino dealers that are spreading throughout Canada and moving into the USA and Europe – from 6 at the beginning of the year to 30 now - Miloshev's company is now the largest distributor for these popular types of electric vehicles in Canada. During the past months several dealers frustrated from negative experiences selling poorly performing products supplied by other LEV distributors have switched over to the superior Motorino brand instead.

China dominates manufacturing of electric bicycles and scooters. More than 70 million units have been produced there since the infancy of this industry about 10 years ago, and production has now escalated to more than 5.5 million units per year. This is mainly due to the fact that factory owners pay very low wages – Chinese workers in the 1,400 factories of the LEV business earn only an average of about \$6 a day, so it's almost impossible for other countries to efficiently compete with their prices. The industry got an enormous boost a few years ago when the Chinese government decided to ban the use of heavily polluting gasoline-powered scooters on the streets of most of its major cities.

Within China itself the competition in the LEV industry is fierce and cutthroat. With such an enormous market for affordable personal transportation among its own population of 2.3 billion hungry consumers looking to improve their quality of life, Chinese factory owners are first and foremost focused on serving internal national demand. To stay ahead

in the race, they're constantly searching for new ways to add attractive features with 'fancy bells and whistles' onto their products to make them more appealing to consumers. But at the same time, they also concentrate heavily on reducing production costs penny by penny, cutting corners and speeding up production line output whenever they think they can get away with it. In the process they tend to pay much less attention than they should to ensuring adequate quality control of their products so they can earn greater market share and squeeze out higher immediate profits for themselves.

In recent years there's been a flood of cheap Asian electric bikes and scooters on the North American market. Unfortunately, most consumers who rushed in to buy the hundreds of thousands of inexpensive imported LEVs quickly became disenchanted by the poor quality of these shoddy products, and dissatisfied by the lack of availability of parts or service structures to support them when their vehicles broke down and needed repairs. Many reputable quality conscious companies from North America that tried to arrange for cooperative arrangements with supposedly reliable Chinese manufacturers consistently encountered broken promises and lack of adequate follow-up service that eventually drove them out of business.

Miloshev went through the same type of disappointing problems himself, as year after year he returned to China for weeks at a time since he started up his business in 2002. In the process he visited as many as 40 to 50 different factories, large and small, trying to locate one he felt he could always count on to produce quality products. Only since he found a new reliable agent 3 years ago - someone who is a close relative of one of the big factory owners, technically competent, knows the components and makes certain of compliance with rigid quality control standards - does he finally feel satisfied with the output. But even then he insists that all LEVs shipped to North America are first closely inspected after delivery before being sent out to his dealers for sale to consumers.

From the beginning he quickly realized how critical and important it was to be able to handle all of the design and engineering work for the motors and electrical systems in North America, leaving only assembly onto the external body shell to the Chinese. Over the years he has teamed up with numerous other engineers and technicians, including enthusiastic university students, to continuously develop various technical innovations. To ensure obtaining the highest quality of metal needed for the steel used in the motors, he switched from suppliers in mainland China to more dependable sources in Taiwan.

The Motorino brand was introduced in 2002 after provincial governments in Canada passed laws to amend their motor vehicle acts to promote the development of more affordable alternatives in personal transportation. Like in the USA at the time, several companies in Canada including Greenwit were set up to import inexpensive electric scooters from China that fit into these specifications. Most of these ventures soon went out of business, but Miloshev continued to believe in the future potential for his products and refused to give up.

Few people in the USA are aware that Congress also passed Public Law 107-319 in the same year. It specifically supercedes State laws, and classifies LEVs as consumer

products subject to the Consumer Product Safety Commission because of their low speed limitations, not as more rigidly regulated motorized vehicles. LEVs are defined as 2- or 3-wheeled vehicles with fully operable pedals, an electric motor with output of less than 750 watts, whose maximum speed does not exceed 20 mph.

Since 2003 Miloshev has brought about a constant evolution in the Motorino brand of LEV products. That year he introduced a 48-volt driving system to the North American market. The following year Motorino scooters were equipped with a regenerative braking system, now widely used in LEV and hybrid cars like the Prius. This system transfers built-in kinetic energy and converts it to provide additional electric power for the battery.

Next, new Motorino models that for the first time accommodated more powerful motorcycle technology were pioneered to the North American market in 2005. Larger lightweight frames were designed to better incorporate the motor in the wheels and allow for more stable support of its heavy weight, while still keeping the vehicles within the limitations of the specifications legally classified them as low-speed electric bicycles.

The normal range of riding distance on a Motorino LEV for a person of average weight is about 30 miles. In the premium models, wiring under the seat is built-in to allow for hook-up of an additional battery, extending the range to about 50 miles before they need to be recharged. Recharging the batteries is easy - they can be plugged into any standard electrical outlet at a cost of only a few pennies, making LEVs dramatically less costly to operate than gas-powered vehicles for daily commuting and local transportation needs. Other recent upgrades in Motorino technology include immobilizing and alarm anti-theft systems, and puncture-resistant tires.

Some of the biggest complaints heard from people who bought low speed electric scooters in the past had to do with their lack of sufficient power for faster starts, and the need for better climbing ability on steep hills that typically slows them down to a crawl and sometimes requires riders to use the pedals to move the scooter forward. What these types of vehicles really need is more torque power to overcome resistance in rotating the drive shaft. Most electric scooters currently on the market are equipped with Brushless Direct Current (BLDC) hub motors with fixed gears that prevent independent speed control and torque, produce friction losses that require frequent regular maintenance to avoid break-downs and repairs.

To overcome this common deficiency, earlier this year Miloshev launched an impressive and unique major technical innovation in his Motorino brand of LEVs: a Continuous Current Transmission (CCT) power drive control system (patent and trademark pending). The CCT controller significantly improves on other BLDC motors because it can readily make appropriate adjustments to provide adequate torque for LEVs to be able to climb inclines and hills more easily *while conserving energy at the same time* - an essential critical feature for electric vehicles!

High speed and high torque are in contradiction to, and work against each other. So most LEV manufacturers set their motor power controller to be able to provide more electric

current to the motor when they need to achieve greater torque force. However, doing this drains the battery (and limits the range) much faster than normal, and at the same time puts the controller and motor under severe pressure so that efficiency drops drastically.

The CCT achieves even higher torque as compared to a regular BLDC motor due to a specially designed electronic microprocessor that changes pulse modulation while maintaining a consistent level of electric current. This special feature allows the rider to easily select either high performance, high torque or high speed independently by pressing a push-button on the handlebar. It does so without adversely affecting the efficiency of the motor while relieving the normal strain on the battery and reducing typical overheating that can strain the power control system.

With this state-of-the-art CCT system, Motorino LEVs can outperform many gasoline scooters now on the market in acceleration. More importantly, it gives them outstanding climbing ability and the capability of maintaining much higher steady maximum speed on hills as compared to any other electric scooters on the North American market today.

Since introducing these technological innovations on MOTORINO products, Miloshev found that after he sold the same amount of electric scooters with CCT motors as he earlier had of standard BLDC and regular geared ones, he experienced 22 times less mechanical problems as compared to what he formerly had encountered. This critical fact motivated his company to offer a unique two-year warranty to back up the superior quality and performance of the improved motors and CCT power drive control systems.

Now that he has a superior product that he is convinced is the best in the North American market today for its class and price range, Miloshev attended the Interbike Expo in Las Vegas (the bicycle industry's most important exposition) for the first time in September to demonstrate the Motorino electric scooters and introduce them to the USA market. Dozens of curious visiting dealers stopped by to check them out and were very favorably impressed by what they saw and learned, many indicating interest in becoming Motorino dealers when the current financial crisis is resolved and the winter season is over.

There are now 3 models of Motorino brand scooters and 1 dirt-bike fitted with the new CCT™ power drive control systems, and early next year Miloshev intends to convert several more scooter models and continue improving on the CCT technology, along with introducing a new higher-speed motorcycle equipped with this exceptional technology. Although these LEVs are controlled by a governor that limits them to speeds of 20 mph, they can be adjusted mechanically to allow for driving at speeds of up to 30 mph in states where the laws governing LEVs permits it.

Although most state laws have still not yet been modified and updated to fully conform to the Federal law, and each state has its own particular law regulating LEVs, generally riders of such vehicles are subject to the same laws as bicycles, not motorcycles. In some states they are classified as mopeds and permitted to operate at speeds up to 30 mph.

Because they operate at such low speeds, making them easy and relatively safe for almost

everyone to operate, there is typically no need for LEV owners to pay fees for licensing tags or registration, inspections (they produce zero emissions), or insurance. Generally, the only legal requirements for LEVs are for riders to have a driver's license, wear a bicycle-type helmet for protection, and they are usually restricted from being driven on Interstate highways or roads where speed limits exceed 50 mph.

On his upcoming trip to China this month Miloshev also intends to complete work on development of a new motor and controller based on a 48V Lithium-Ion driving system for electric conversion systems on 'power-assist' electric bicycles. These are vehicles that look and ride like regular bicycles, so they can serve the same purpose for exercise and recreation, but have a motor to give an extra boost when the rider is tired or reaches a steep hill where he would prefer the option of some help in climbing. He also hopes to find a reliable supplier of high quality Lithium-Ion batteries at affordable prices.

To make sure that the Motorino brand is always ahead of the game and leading the LEV industry in the production of vehicles known for high quality and performance capability, his company intends to also make a very major financial investment next year to procure extremely expensive new state-of-the-art equipment that will greatly improve and facilitate Greenwit's capacity for doing all of the desired design and engineering work here in North America.

With the recent abrupt changes in consumer attitudes and increased public awareness about the urgent need to find more feasible modern solutions to address our endangered planet's environmental problems, economic news commentators are now all touting Green technologies as the future winners on the stock market and in the marketplace. Suddenly we see rising political pressure and a big rush among automobile manufacturers to take bold action and switch over quickly to alternative fuels in order to try to cash in by forging ahead of the competition.

Because they are already available and much more affordable to the average consumer since they sell for only a fraction of the price, there's definitely a big place in the market for LEVs that have the potential of developing into an enormous niche in the field of personal transportation for the future. Recent studies show that 25% of the time drivers get into their cars it is to travel distances of a mile or less to take care of errands, and 50% of the time they travel less than 5 miles. Furthermore, more gasoline is burned off from cold starts of conventional motors, adding to the pollution poisoning our air. An ideal solution to this problem would be for consumers to consider using instead an LEV when they need to travel such short distance drives.

LEVs are especially affordable to the general public during the tough financial times we are now facing brought on by the current major economic credit crisis, when so many ordinary people are already feeling the pinch financially and struggling to just get by and make ends meet. Switching to an LEV could be a perfect alternative way for people to cut back on expenses and save money on their personal transportation costs, since they require absolutely no gasoline for fuel and minimal maintenance and repairs.

Early next year a new East Coast distribution center will open in Baltimore to better serve dealers of Motorino products in the USA, and Miloshev is now accepting applications for new dealerships, either from existing dealers or ambitious confident entrepreneurs interested in setting up a highly profitable new business in an industry that is the wave of the future. Because the distribution center should be able to rapidly replace and service stock to dealers after the operation is up and running smoothly, the wholesale prices for these products are relatively inexpensive. He also offers an attractive mark-up in price as an incentive for dealers. It is thus possible for a start-up business to get into operation with only a fairly small inventory and relatively minimal investment costs.

Prices of the CCT™ equipped Motorino electric scooters range from \$1900 to \$2200 – the best seller premium model comes equipped with a hydraulic disk brake on the front wheel & pre-installed wiring for installation of an additional battery under the seat. There are many cheaper LEV products on the market today, but industry experts all agree that ‘you get what you pay for’ when you buy an electric scooter today. So if you’re thinking of getting one, you’d better beware of the quality and performance of unproven cheaper brands. You can learn more about Motorino scooters with their superior CCT power drive control systems at this website: [www.motorinocycles.com](http://www.motorinocycles.com) or view them on interview on video at <http://www.youtube.com/watch?v=1SDYDWGr3Eo>

Motorino LEVs are ideal for travel over short distances in urban or suburban areas, such as for commuting to work or as a substitute for a second car to take care of errands around the neighborhood, and they are particularly attractive to Green-oriented environmentally conscious consumers. Their reasonably low prices make them affordable to even most college and university students, as well as to many low-income urban residents who now have no other means of transportation other than public systems.

Satisfied customers who have recently bought Motorino products now happily scoot past gas pumps on their *cool* and trendy stylish-looking colorful electric scooters, and forget all about the financial burden they used to put up with from the times when they had to pay a lot in gas money just to get around.

Miloshev’s ultimate goal is to make the Motorino brand name of LEVs widely known to all North America consumers. He hopes Motorino will gain the reputation of being not only the best in quality and performance, but also the most affordable products of their kind in the industry. He’s doing just what it takes to make that happen. Check them out for yourself to find out how convenient and cost saving they can be.

*This article was written by Ray Carrier, President of Green Rider LLC based in the Baltimore/Washington DC region, approved dealer and distributor for Motorino products in the USA.*

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