

## Comes with Batteries Installed!



Source: [www.TurfMagazine.com](http://www.TurfMagazine.com)

Evolving Li-ion technology makes electric units more promising for pros



[Click image to enlarge.](#)

TruGreen Landcare is using Mean Green's 60-inch unit in South Pasadena. (L. to r.): Gonzalo Maravilla, parks supervisor; Jose Cabrera, TruGreen supervisor; Dan Mable, president The Greenstation; Joe Espinoza, TruGreen Landcare branch manager; and Michael Cacciotti, councilmember South Pasadena. Photo Courtesy TruGreen Landcare

Imagine your fuel costs cut by more than 200 percent – how would that affect your company's bottom line? Lithium-ion (Li-ion) battery technology is advancing in use within the landscape maintenance market, and several manufacturers are offering this technology in commercial applications ... and, in effect, promising just that.

Is it a promise they can keep?

Yes, but only in select applications, and with reservations given the incredible demands put on landscape maintenance equipment by commercial users and the newness of the technology.

It's fair to say that most professional service providers remain in a "prove-it-to-me-first" stance at this point in the development of battery-powered equipment. Even so, companies that promise "environmental" landscape services and even some traditional landscape companies are equipping crews with these units.

Some HOA's and a growing number of municipal and residential customers seem to be willing to pay a premium for property maintenance services that are quieter and are practically emission-free.

This is enough to encourage a select group of suppliers to believe that there's enough of a market (and a brighter future) to manufacture, market and sell cordless electric units, not just for homeowners but to the professional market, as well.



[Click image to enlarge.](#)

Cub Cadet's RZT S ZERO features a steering wheel with four-wheel steering. Like the Hustler Zeno electric zero turn, it was developed primarily at homeowners or estate owners with an acre or more of turf.

Photo Courtesy Cub Cadet

## **Greener mowing?**

Mean Green Products, Hamilton, Ohio, Hustler Turf, Hesston, Kan., and Cub Cadet, Cleveland, Ohio, offer electric zero-radius-turn mowers. Of the three, Mean Green is the strongest promoter of its units for commercial use.

"We believe that Li-ion energy products can be both powerful and efficient," claims Joe Conrad, president of Mean Green Products, pointing to the advances made in the development of Li-ion batteries. Consider the utility of hybrid automobiles, such as the Toyota Prius, and the battery technology that motorists rely upon.

"Recent independent tests have shown up to 4,000 recharging cycles while only losing about 10 percent capacity," says Conrad of the batteries in his mower.

Conrad says the company's 2013 models include lithium-powered mowers that can mow continuously for up to four hours and are capable of a two-minute lithium battery-module exchange. Models CXR60 and CXR52 feature four lightweight Li-ion batteries that, when depleted, can be replaced with a fully recharged battery-pack from the contractors' trailer or truck. The depleted batteries are then recharged with what Conrad terms, Smart Chargers.

The expended Li-ion battery-pack on the contractors' trailer will be completely recharged in about two hours and ready for reuse. He says the lifetime for Li-ion batteries is estimated to be about 10 to 12 years, or more than 5,500 operating hours.

Although Li-ion mowers are priced 25 to 35 percent higher than their gasoline-powered counterparts, Conrad maintains that the typical Mean Green commercial mower, with a service lifetime of 2,000 to 3,000 hours, will pay for itself in operating savings.

He also touts the environmental plusses of electric mowers, claiming that every Mean Green Mower that replaces an existing commercial gasoline-powered riding mower "will take the equivalent pollution of 60 new cars on the road, assuming about 600 hours per year mower usage."

Cub Cadet and Hustler also over battery-powered zero-turn mowers. Hustler was first to market several years ago with its Zeon model, which is targeted more

to the residential market.

Similarly, Cub Cadet's RZT S ZERO's primary user market is the residential market, homeowners with an acre or more of turf to mow. This unit is unique in that it offers steering wheel control with four-wheel steering, which is also featured on its gasoline-powered, Z-Force S commercial line of mowers.



[Click image to enlarge.](#)

With a portable battery backpack and two plug-in chargers to choose from, STIHL is looking forward to additional commercial applications with its quiet electric landscape tools.

Photo courtesy STIHL.

## **Quieter, cleaner hand-helds**

While professional users still overwhelmingly favor two-stroke hand-held units for day-in-day-out commercial duty, electric units are gaining traction with landscape pros in specialized applications.

Dan Pherson, product manager, STIHL, Inc., concurs that Li-ion technology has come a long way from the nickel-cadmium batteries, which could be overcharged and were more volatile.

"We're continuously looking to improve the reliability and durability of our battery-powered outdoor tools," he says. "Longer-life, increased power and lighter weight products will make practical, and economic, sense to commercial applications."

Pherson claims that STIHL's HLA 65 extended-reach hedge trimmer, for instance, can return initial investment in as little as 300 operating hours compared with a comparable gasoline trimmer that requires fuel, oil and air filters.

The 36-volt STIHL Lithium-ion batteries provide an LED digital readout advising the operator how much charge is left. And, this extended-reach hedge trimmer has 140 minutes of "trigger time," or continuous usage, with a standard charge. But when it's combined with the company's newest generation AR 900 Backpack Battery, it can provide up to 660 minutes of trigger time, he says.

STIHL's line of Li-ion landscape tools includes chain saws, trimmers, hedge trimmers, a blower and a residential mower with more tools to be added. With a portable battery backpack and two plug-in chargers to choose from, STIHL is looking forward to additional commercial applications with this quiet technology. The 36-volt AP 180 Li-ion battery is designed for long running times with quick recharges, and it operates at full speed until depleted. Batteries can be charged hundreds of times without any noticeable loss in capacity, and special battery electronics constantly monitor the battery to help ensure optimal operation, safety and a long service life. With instant-start ability, the battery can be switched out easily so that workers can

resume quickly.

Other manufacturers are also improving the power and run times of their battery-powered units. For example, Makita recently began offering a new cordless blower powered by two 18-volt batteries. Its new model BUB360Z2C has the “performance and power of gas-powered models, but without the noise, emissions and maintenance,” claims the company.

The unit weighs just 8 pounds and features LED battery indicators that show the charge level for each 18-volt battery, Makita says.

While interest in alternate energy landscape equipment is growing, most Americans, and especially landscape professionals, still overwhelmingly prefer gasoline-powered equipment. They’re familiar with the technology, and appreciate its ease of use and proven performance. Li-ion technology, for all of its promise, is still relatively unknown and unproven in the rough, tough, incredibly competitive commercial landscape arena.



[Click image to enlarge.](#)

The Makita unit features LED battery indicators that show the charge level for each of its two 18-volt batteries.

Photo courtesy Makita

## **Green Zones sprout up in California**

Dan Mabe, president, The Greenstation, Woodland Hill, Calif., works with municipalities, businesses, residents and commercial landscape companies in the Los Angeles area setting up “Green Zones” and promoting the versatility of Li-ion battery mowers and lithium lawn and garden equipment.

“The Greenstation is the only authority who sets up Green Zones, which are specific areas solely dedicated to zero emission and low noise maintenance practices. We are the LEED equivalent for the landscape maintenance industry, and are now able to tackle properties with tens of acres with the help of Mean Green mowers,” says Mabe.

The Greenstation, with financial help from Koss Financial, just completed creating a Green Zone at the Malibu Country Mart, a high-end retail mall. These community/business partnerships help to reduce pollution in metro areas and promote a sense of comity between business and community leaders.

Utilizing STIHL battery-powered hand-tools, The Greenstation’s team of 20 seasonal employees and four year-round employees has been incorporating green technology for seven years.

“We have rigorously field tested every product that is on the market and STIHL is the only manufacturer to meet our tough Green Zone certified equipment list for commercial battery hand-held appliances,” says Mabe. “And, we have purchased the complete line of Mean Green mowers to augment our Green Zone programs; they have exceeded our expectations, and I like the fact that

they are manufactured in the U.S.A.”

Joe Espinoza, branch manager, TruGreen Landcare, Pasadena, Calif., is starting to become a believer in Li-ion technology, “We were approached by Greenstation to attend a live demonstration of the latest zero-emission equipment. I was genuinely impressed with the 60-inch and 33-inch mowers and am impressed with the performance to date. I understand that the zero-emission equipment will not perform to the production rate of its gas-powered counterparts, but I feel that it is more of an adaption and production scheduling task to provide the service demanded by the customer.”

As more and more counties and municipalities search out ways to demonstrate their resolve in rectifying pollution problems in urban areas, they are looking to service providers for economical ways to reduce their carbon footprint.

“Our business relationship with the city of South Pasadena is one of understanding needs and desires of the city. They are very environmentally conscience and want what is best for the city and its residents,” says Espinoza. “The engagement of the large production mower in the parks was an easy decision as the 60-inch Mean Green mower operates at about 80 percent of the production rate of its gas counterpart.”

Espinoza’s responsibility is to improve production, manage costs and to improve ways to be of benefit to the local community and to improve working conditions for his crews.

“I’m constantly reviewing product production, costs and how we can adapt existing maintenance contracts with zero-emission equipment. It would be great to be able to switch to zero emission as it would not only benefit our clients with the elimination of noise and air pollution, but also afford my staff a healthier work environment as well,” he adds.

The chemistry and science behind Li-ion technology has evolved and today these batteries consist of lithium iron phosphate ( $\text{LiFePO}_4$ ), utilized as positive current conductors. These materials have driven their cost down and their reliability and safety up. Previous Li-ion battery technology used lithium cobalt oxide, a suspected carcinogen, or alternately lithium-polymers, which tended to overheat, as conductors. The compound  $\text{LiFePO}_4$  has been a major advancement in stabilizing and lowering this newest technology.

Mike Ingles is a freelancer writer living in Columbus, Ohio, who writes articles about business and the green industry. Contact him at [duckrun22@gmail.com](mailto:duckrun22@gmail.com).