

CORDLESS OUTDOOR POWER

HOW LITHIUM-ION TECHNOLOGY IS
CHANGING THE GAME



DON KOON

Sr. Director of Commercial Sales

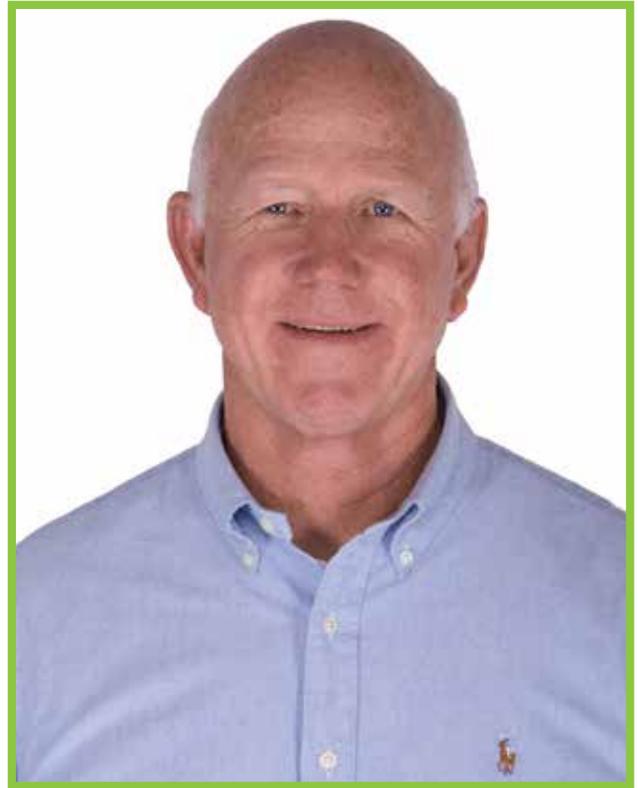
In 1997, Toyota introduced the Prius, its first mass produced hybrid, to the Japanese market. It was a very peculiar looking vehicle that was imported into the US in 2000 and the automobile market has continued to evolve ever since. Fast forward to today and some of the highest performing automobiles on the planet are now electric.

You may ask, what does that have to do with lawns and landscaping? Actually, the answer is quite simple; as the auto industry goes, so goes outdoor power equipment.

Landscapers today are facing pressures of conformity on numerous fronts. In the US, over 150 municipalities now enforce noise ordinances that limit operating hours of landscapers' power equipment. In many parts of the country, there are now environmental restrictions on emissions created by Outdoor Power Equipment (OPE) that didn't exist before. There are rising concerns of fatigue related to vibration and finally, the rising cost of fuel and our reliance on oil. Currently, the government allows up to 10% ethanol as a gasoline additive but that number could increase to 30% in the near future. The bad thing is that ethanol wreaks havoc on small engines. What's a landscaper to do?

Naturally, in an industry that has always been powered by gasoline, there are skeptics when you first mention battery operated power equipment. The same thing happened when the first hybrid arrived on our shore. However, lithium-ion technology has improved tool performance at a compounded rate and magic happens when you put the tool in an end-user's hand and have them start it up. The satisfaction is apparent as they realize power is not compromised and these tools are game changers.

Much like Toyota, Greenworks Commercial™ has been a pioneer in developing this technology. Our tools are built on an 82-volt platform, the most powerful in the industry. When anyone tries a Greenworks Commercial™ 82 tool, the power always exceeds expectations. Users marvel at how quiet they operate, the obvious lack of vibration and ease of operation. No more pull cords, simply press the button and go. And then, there's the surprising performance. All of our tools operate on the same battery platform, meaning when you finish trimming, simply put the battery in the blower or another tool and keep running! It's like moving gas from one tank to another. And let's talk about efficiency and cost savings. A 5-amp hour battery costs about \$.10 to



fully charge. Daily operating cost savings is substantial. In the long term, batteries can be recharged up to 500 times and can last up to 5 years.

This cordless segment of OPE is rapidly growing, just like the auto industry. Nearly all gas OPE manufacturers either have or are quickly developing battery operated tools in anticipation of the coming trend. There is value for landscapers to advertise the use of battery operated tools and sell it as a value-added service as restrictions become a reality. Those who embrace this technology now are likely the ones who will benefit the most as the future unfolds.

The following pages will dive deeper into cordless and more specifically, Greenworks Commercial™ 82. We hope you enjoy your look into the future.



WHY CORDLESS?

So you've used gas powered outdoor power equipment from the very first time you picked up a string trimmer. It's what your dad used. It's what your grandfather used. It's always gotten the job done. Yes, it's loud... and heavy... and messy with all of the gas, oil, and mixing. And then there's the maintenance and downtime when something breaks... but it's what you know. It is what it is, if you want to get the job done, right? What else would you use?



LITHIUM-ION: NOT YOUR GRANDFATHER'S BATTERY

Lithium-ion battery operated cordless tools provide all the power of a gas-engine with many benefits that make it the clear choice to replace your gas operated tools. Developments in Lithium-ion battery technology have enhanced the performance of cordless outdoor power equipment. Lithium-ion batteries are not the same as the Nickel Cadmium (NiCad) batteries that first took the cordless world by storm only to deliver heavy weight, weak, and inconsistent power. Lithium-ion batteries deliver a longer life, higher and reliable power, and quicker recharge times. They can be recharged before they are fully discharged without creating a "memory effect" and operate in a wider temperature range. These are common issues users were faced with NiCad batteries. Lithium-ion batteries are smaller, lighter weight and environmentally safe, as lithium is nonhazardous and recyclable waste.

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NO GAS. NO OIL. NO FUMES.

No fluctuating fuel costs. No mixing. No spills. No smelling like fuel and exhaust all day long. Cordless tools deliver outdoor power without the mess and smell of gas and oil, so you can breathe easy. Charging a battery is typically a fraction of the cost of a tank of gas, lowering operating costs.

LOW MAINTENANCE

Because there is no gas going through the engine, cordless outdoor power equipment requires lower maintenance. No carburetors to service, no lines to be replaced, no oil to change, no replacing spark plugs, no cleaning air filters... means no down time. With cordless outdoor power equipment, the tools are ready to work when you are.

QUIET

Cordless outdoor power equipment, especially when powered by a brushless motor, are up to 50% quieter than a gas-powered tool. This quiet operation allows you to work in sites where there are noise restrictions in place. Quieter operation means you can start your day earlier, get to more jobs, and work later – all without disturbing your clients. Additionally, lower noise levels protect the hearing of the tool operator.

EASY TO OPERATE

Cordless outdoor power equipment starts with the push of a button, or squeeze of a trigger – no more pulling a cord. Start and restart easily. When brushless motor technology is involved, cordless outdoor power equipment drastically reduces vibrations as compared to gas-powered equipment. Lighter-weight tools with reduced vibrations means less user fatigue, resulting in extended use and an easier week of work. When you're using these tools 8-12 hours a day, this

is a huge benefit. When you make a living with your tools, you want something that you can rely on, and will deliver the power and performance you need. Thanks to advancements in lithium-ion battery technology and brushless motors, today's cordless outdoor power equipment can deliver just that. Cordless tools give you reliable power without the hassle of gas.



WALK-BEHIND MOWERS



BATTERY-POWERED OUTDOOR POWER

In one hour, one walk-behind gas mower emits the same amount of pollutants as eight cars operating for the same period of time. And for a ride-on gas mower it is even worse – 34 cars in one hour! The US Government continues to look for ways to reduce emissions from engines that burn gas and oil. For years, Ethanol has been their answer, and recently has come under scrutiny.

Ethanol is a renewable fuel made from various plant materials collectively known as biomass. Almost 97% of U.S. gasoline contains E10 ethanol (10% ethanol, 90% gasoline), to oxygenate the fuel and reduce air pollution.(Energy.gov).

According to the US Environmental Protection Agency (EPA), the increased use of ethanol will help reduce emissions and improve air quality, increase energy independence, and replace MTBE (Methyl Tert-Butyl Ether), an oxygenate used to raise the octane number, and which has known to occur in our groundwater. In addition, the US Department of Energy credits ethanol for job creation and fuel economy and performance in vehicles.

The EPA is pushing for higher ethanol levels in the gasoline that fuels our cars, boats, snow mobiles, ATVs and small engine lawn and snow equipment. But small, two-stroke engines, if not properly maintained while running E10 are subject to condensation in fuel tanks which can lead to corrosion of engine components. Ethanol is a solvent. It can release sludge and other deposits into the fuel and combustion systems and damage the engine. Two-stroke engines have ports and jets that can become clogged from these deposits causing the engine to be harmed. (Matthew W. Veal, PhD, NC State Cooperative Extension, August 2014)

OPEI is pushing for more education for consumers who don't understand what ethanol is doing to their lawn equipment when buying their gasoline at the pump. Recently, the EPA approved a waiver that allowed the ethanol formulation to be increased to 15% Ethanol or E15, but outdoor power equipment remains exempt from this waiver. There is not enough data on two-stroke engine performance when burning E15. But its time will come. Over 150 cities and towns in the US have some type of ban on gas-powered lawn equipment either due to noise or emissions.

While ethanol continues to wreak havoc on two-stroke engines across the country, there is a new movement in commercial outdoor power equipment. Like electric cars, battery-powered lawn equipment is growing in popularity with both consumers and now commercial landscape professionals. During the last decade, lithium-ion technology has replaced nickel-cadmium batteries in handheld power tools on every jobsite increasing confidence in performance and offering advantages versus gas as well. Lithium-ion batteries are smaller in size and lighter weight with virtually no self-discharge. This means the battery can be stored for many months without losing its charge.

What about power? New innovative technologies have brought higher voltage platforms and brushless motors which offer greater efficiency, durability and tool performance. These tools can tackle more difficult applications because the power and the mechanics work together to increase output. Increasing voltage or motor efficiency increases power. One key advantage to lithium-ion batteries is that you can get more power without increasing weight.

RIDING MOWERS

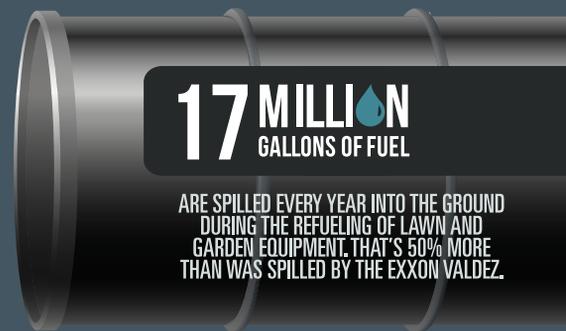


R EQUIPMENT, THE ONLY ALTERNATIVE

For over 10 years, Greenworks Commercial™, a leader in electric & battery-powered equipment, has designed and manufactured innovative lithium-ion battery platforms which power multiple outdoor tools, delivering gas-equivalent power and performance without the mess, fumes and noise. After years of research and development, Greenworks Commercial™ debuts nationwide to professional landscapers at GIE & EXPO. Designed with input from landscape professionals, Greenworks Commercial™ 82V battery-powered tools offer easy start, low maintenance, low vibration and quiet tools compared to gas.

Designed with the professional in mind, Greenworks Commercial™ offer tool balance, streamline design, with quality parts. With over 13 tools and accessory items, Greenworks Commercial™ 82V offers one of the widest assortments, and highest voltage platforms in the business. Hassle-free lithium-ion battery powered tools also offer cost savings versus gas considering engine maintenance, the time and cost of gas and oil mixing and trips to the gas station. No purging or winterizing necessary. Just push the button without the worry and hassle of cold starts. Greenworks Commercial™ 82V Battery Powered Outdoor Tools offer the best alternative to gas-powered tools.

ENVIRONMENTAL HAZARDS



IF EACH GAS-POWERED LAWN MOWER SPILLS ONE LITRE OF FUEL PER SEASON, THERE WOULD BE **56 MILLION LITERS OF WASTED**

THAT'S THE SAME AMOUNT CARRIED BY **2,800 TANKER TRUCKS**



WHISPERING PINES FOR LAWN & LANDSCAPE

Brian Webber, Owner of Whispering Pines Landscaping, Inc. has been in business since 1988. He chose to base his business just North of Charlotte, in Denver, NC, and has completed many landscaping projects throughout the area. He has enjoyed continued growth by building relationships with the area's finest builders, maintaining a substantial customer base and inviting referrals.

Whispering Pines is a full service full service lawn care and landscape construction company, serving both residential and commercial clients. Brian offers customers a wide variety of services such as custom landscape design, irrigation, drainage, lighting, hardscapes, installation, maintenance and more.



WHY BATTERY?

We asked Brian why he decided to go to battery power. He said, "I decided to try the battery tools after I went to a tool demonstration. At that time, I was able to use the hedge trimmer and chainsaw for one week. After doing that, I was sold." "They really worked out well. That was when I started to purchase these tools for my team. Now that I made the change, the team asks for these tools. They don't want to mess with the old ones."

Searching for a better way to manage his costs, Brian noted that with the Greenworks Commercial™ battery operated tools, "the battery is a fixed cost and the tools are more reliable." When asked about those costs, he said "We can better determine our costs when we are pricing a contract, whether it's for a year or a season." He continued, "with gas tools there is an unknown cost of fuel, tool maintenance and/or replacement. As an example, when using gas tools, the crew may set the tool down without turning it off because it is difficult to start, wasting fuel and stressing the tool." And as another thought, he added "There is also savings in hearing protection because the tools are so much quieter that the crew does not require as many earplugs. It is a small cost, but these small things add up."



RELIABLE

Whispering Pines has a busy business and we were curious about how they kept up with the demands of the business. He noted that “Once we get the labor force managed, we need efficient, reliable tools. In the past we have had to plan for downtime, due to tool breakdown and problems. Now we can schedule our days and feel confident that we will accomplish what is on the schedule because we have reliable tools.” He added, “Ethanol fuel eats carburetors and hoses and can even crumble a tool within a year. That’s a frustration and an expense. You may be able to use other fuels to help, but it doesn’t really save you money. Fuel costs are an issue and an unknown factor with fuel costs changing all the time.”

Scheduling has been an additional challenge to the growing Whispering Pines business. When considering scheduling and efficiencies, he said “when I send my guys out, they are on the job right away because the battery tools always start.” “There is no fussing around with mixing fuel; you don’t have to pull and pull, so they get started right away with the push of a button as soon as they arrive and are ready to start the job.” “It is nice knowing I can send a trimming crew to a job and can count on the Greenworks Commercial™ battery tools. The crew doesn’t have to chase gas, clean gas spills if sloshed or tipped over, worry about getting fuel on their skin or have any other issues that come with gas, they just get started and get the job finished quickly.”

USER FRIENDLY

When we talked about health concerns, Brian said “I have had people injure their shoulders pulling and pulling to start gas tools. Now, with the simple push button start, that worry goes away.” He also noted the benefit of his employees not being exposed to the gas fumes, exhaust and possible personal injury. He also mentioned that the tools are quieter so the concerns of hearing damage is lower. “Not only are they quieter, but the tools are lighter, resulting in less fatigue for my crew. After an 8-hour day working with these tools, it is so much easier on them. They also have less shoulder and arm injuries because they don’t have to pull and pull on a pull cord.”

“The battery tools have been a great surprise. After the test crew tested the mower, they loved it.” It’s quiet, no pulling and it cuts extremely well. We also like that it is lightweight and easy to maneuver. It’s lighter and easier to get on and off the truck, and once again, it is nice to know it will always start.

Whispering Pines crew gives rave reviews on the push mower, blower and hedge trimmer – “rave reviews on all those and the chainsaw.” They are now requesting Greenworks Commercial™ tools for all their jobs. One of my team noted that “the hedge trimmer ran all day on one battery.” Our workers are asking for Greenworks Commercial™, not gas.



WHISPERING PINES FOR LAWN & LANDSCAPE



SAVES TIME AND MONEY



Brian noted that they have seen the value in the Greenworks Commercial™ tools in many ways. He said, “we don’t have to replace tools as often, repairs are minimized, pull cords never have to be replaced, fuel costs, oil costs, maintenance on carburetors, adjusting valves, and maintenance costs in general are lower.” “It also saves us down time due to unexpected tool breakdowns. The quality of the Greenworks Commercial™ tools are superior, and the cutting quality is great. My crew loves them.”

Another value he notes was that the Greenworks Commercial™ tools helps him economically perform what they need to do at 10-12 houses a day. He said, “If the crew spends an hour a day starting equipment, that is a huge loss of time. Multiply the time it takes to pull the start cord every work day over a year, the time the Greenworks Commercial™ tools save is huge.”

“It’s easy to talk about how Greenworks Commercial™ saves me time and money,” said Brian. “Just think about the time spent stopping for gas, mixing gas and oil, fueling up the tools, starting the tools – all those are expensive time factors.”

“The Greenworks Commercial™ tools are more efficient in just about every way. As an example, the chainsaw always starts; never a problem - hit the trigger and it goes – Greenworks Commercial™ really nailed this tool. Compared to gas chainsaws that can be the most frustrating – even with the best maintenance they can a problem – and they are frustrating to start. With the Greenworks Commercial™ tools, they start every time, cut and wait for the next cut. We have found that the battery lasts the equal to 3 tanks of gas.”



ECO-FRIENDLY



He also noted other environmental benefits. “The lower noise is huge - no one wants to hear loud blowers. We can start jobs as early as 7:30 A.M. due to the lower noise factor. Or maybe a job runs late, 5:30 P.M., dinner time – we can continue to work and not worry that we are bothering our clients with the noise.”

He went on to say “Obviously the tool emissions and the problems with gas spillage when filling or mixing. We don’t worry about those things with Greenworks Commercial™.”

Brian mentioned that as an owner, the warranty is very attractive to him. “With Greenworks Commercial™ 2-year tool and one-year battery warranty, it makes purchasing these tools an easy decision. Overall, we are extremely pleased with the Greenworks Commercial™ tools and look forward to new tools coming out such as a power lopper, extended reach trimmer and charging case. I will be buying several more sets for my crew. When I found out you have power tools, I bought some of those, too.”

AGZA SERVICE PROVIDERS AND AGZA GREEN ZONES® ARE CHANGING THE LANDSCAPE OF GROUNDS MAINTENANCE

The American Green Zone Alliance is the global leader in zero-emission sustainable grounds maintenance strategies. Our sustainability consultancy helps your grounds maintenance service make informed, practical and profitable decisions as we guide your transition to quieter, zero-emission technologies. Our decade of experience has proven that the best way to take care of your bottom line while also taking care of your crew, your community, and the environment is to evolve your gas equipment to the best performing commercial-ready electric tools.

AGZA's two core services are accrediting AGZA Service Providers and certifying AGZA Green Zones®.

AGZA educates grounds supervisors, lawn care professionals, and property owners on the hazards of gas machines, the performance, features and benefits of battery-electric equipment, their safe and optimal operation, and effective charging infrastructure. Mastery of our proprietary materials is distinguished with accreditation as an AGZA Service Provider.

AGZA Green Zones® are properties on which routine maintenance is serviced with zero-emission equipment, hand tools, and sustainable land care practices. These pristine zones are coveted in communities and campuses for their quiet, fume-free maintenance and extremely low carbon footprint. Green Zones can be created in outdoor spaces of any size, from residential to academic, commercial, and municipal.

AGZA is proud to have publicly certified Malibu Country Mart as the nation's first AGZA Green Zone commercial property, Torrance American Baseball Fields as the nation's first AGZA Green Zone sports complex, and South Pasadena as the nation's first entirely AGZA Green Zone City.

AGZA's passion for electric operations actually comes from our roots in the gas-powered lawn and garden industry. Like millions of other hard working grounds crews, we experienced the noise, fumes, and pollution of gas equipment every day, simply because there hadn't been a serious, commercial alternative.

But stunning leaps in battery tech and industrial design like those in the Greenworks Commercial™ 82 Volt Commercial line have resulted in entire suites of cordless electric tools that finally rival the raw performance of gas. The lawn care industry is experiencing a zero-emission, low-noise revolution. The cost savings by completely eliminating fuel, oil, spark plugs, filters, hoses, and the maintenance thereof ensures a healthy ROI to go along with your much healthier lawncare, air quality, and peace of mind.

Green Gardening Service and Evergreen Lawn Care are two impressive accredited AGZA Service Providers whose commercial operations are built around 100% electric machinery, including top-of-the-line tools from Greenworks. In fact Green Gardening Service uses exclusively Greenworks equipment to maintain their route of over 70 homes.

AGZA is busy accrediting forward-thinking zero-emission grounds crews across the country, and developing AGZA Green Zones which require their services. Collaborating with our East Coast partner Quiet Communities, AGZA is in the process of certifying the first AGZA Green Zone on the East Coast in the city of Southampton, NY.

For more info on the latest commercial-ready zero-emission lawn and garden equipment, AGZA Service Provider Accreditation, and AGZA Green Zone Certification, visit AGZA.net or call 1 (310) 779-9785.

"THIS AGZA GREEN ZONE CITY CERTIFICATION WILL AFFECT MORE THAN 41 ACRES OF CITY-OWNED LAND AND AVOID MORE THAN 31 TONS OF POLLUTANTS PER YEAR FROM BEING EMITTED INTO THE AIR. WE'RE PROUD TO HAVE PARTNERED WITH AGZA TO PROVIDE CLEANER AIR AND MORE PEACE AND QUIET TO EVERYONE WHO LIVES IN SOUTH PASADENA."

~ Michael Cacciotti, Mayor Pro Tem of South Pasadena and a Governing Board Member of the SCAQMD

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Find out more at www.greenworkscommercial.com

