

RV News

The Voice of the RV Industry

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Small Dealership Thinking Big



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Freedom Electrified

Mission Critical Electronics (MCE) expanded Xantrex's product catalog before acquiring ZeroRPM to grow the brand's electrification capacity. With an energy solutions Dream Team assembled, CEO Kevin Moschetti discusses how Xantrex is evolving and what MCE sees in the RV industry's future.

By RV News Staff

When a breakthrough innovation hits the market, one person's genius is rarely the cause. Although history loves to tell stories detailing singular "Eureka!" moments, true evolution is a considerably slower burn. Intersections between multiple human endeavors create both teamwork and competition, catalyzing innovative thought.

The RV industry is no exception. From motorhomes to travel trailers, iterative improvements required many minds spanning many decades. Recently, such collective brainpower compounding in real time resulted in a new RV product.

Freedom eGen Max, which launched in April 2021, was a collaboration between Xantrex and idle mitigation expert ZeroRPM. The lithium-ion-powered system is a hybrid solution for off-grid RVing. By integrating with the RV's engine and electrical system, Freedom eGen Max can automatically charge the battery while

simultaneously providing climate control through factory vents.

Eliminating a generator and idling engine without sacrificing on-demand power presents consumers with several immediate benefits, said Kevin Moschetti, CEO of Mission Critical Electronics (MCE), Xantrex's and ZeroRPM's parent company. Benefits include reduced emissions, less fuel consumption and quieter operation.

“We see ourselves as providers of clean energy solutions and an enabler of the electrification trend.”

— Kevin Moschetti

Moschetti said Freedom eGen Max's wider implications are where the technology's potential really shines.



Kevin Moschetti was named Mission Critical Electronics CEO in 2017.



Mission Critical Electronics conducts an executive meeting in the company's boardroom. Participants are (L to R): Dale Tompkins, president, vehicle power; Wolfgang Hombrecher, chief financial officer; Moschetti; Richard Gaudet, president, marine power (on TV); Justin Purkey, vice president of administration and integration; Mark Kroh, president, network and industrial power; and John Hoeft, vice president of operations.



(L to R) Hoeft and Moschetti discuss testing plans.

In addition to improving in-cabin comfort, Moschetti said Freedom eGen Max enables RVers to disconnect from sometimes unreliable shore power and think beyond crowded campsites. Armed with greater electrical autonomy, campers can confidently explore off-grid locations more sustainably, he said, highlighting a key word in the product's name: Freedom.

"That is what drives it—the freedom it gives the RV owner or operator to do what they want to do, go where they want to go and have the comforts and conveniences which are really behind their purchase of an RV without being tethered to a plug," Moschetti said.

As for OEMs, he said they see the product eliminating rooftop AC units. Building RVs without rooftop ACs would change and simplify the process, he said.

"Plus, it frees up real estate on the roof for more solar," Moschetti said.

Though Freedom eGen Max opens the door, the product represents just one link in a much larger technological chain emerging from MCE's growing brain trust. Since acquiring Xantrex, the company hired new talent, updated facilities in both Elkhart and Vancouver, British Columbia, and thus expanded its solar and inverter offerings.

ZeroRPM's addition enabled MCE to manufacture lithium batteries on American soil. More important, Moschetti said, the acquisition brought key expertise in-house regarding battery management and integrated systems.

"In the first half of 2021, 20% of our business across the MCE portfolio came from products launched in the past three years," he said. "Twenty percent is a really high (Product Vitality Index) number in our kind of manufacturing world, and so we take a lot of pride in that—how we are continuously developing new products and investing in our capabilities."

Problem-Solving Opportunities

Moschetti said MCE's accelerated product development is largely due to the world's rapidly evolving

power needs. Consumers continually add more electronic devices to their arsenals. Vehicles are constantly gaining more sensitive, power-hungry instruments.

Additionally, he cited two major macro trends impacting the marketplace: changing consumer demographics driving increasing energy demand and the electrification trend gaining speed and muscle.

Moschetti referred to the recent California Air Resources Board's (CARB) Small Off-Road Engine regulation as evidence. The ruling includes an amendment designed to phase out newly manufactured gas and LP-powered RV generators by 2028 in California.

Headquartered in Huntington Beach, California, MCE manufactures and supplies electronic power products across several brands. The company focuses on what it deems "critical system applications" in three markets: specialty vehicle, marine power and network/industrial power. Concentrating on power generation, storage, conversion and connectivity, MCE manufactures power converters, battery chargers, inverters, distribution panels, circuit controls and installation accessories.

Despite the company's inverter offerings for stationary applications, Moschetti said MCE's mobile solutions represented a product portfolio gap. The December 2018 Xantrex acquisition filled that need and marked MCE's RV industry entrance.

"Schneider Electric, who used to own the Xantrex brand, was looking to divest," Moschetti said. "We were very interested in the company—the people, the capability and the markets they were in. It was just a really great fit for us."

Founded in 1983, Vancouver-based Xantrex boasts a long-standing history in the RV industry. The company's Freedom 458, which launched nearly 30 years ago, was the industry's first microprocessor-controlled inverter/charger combination unit. As a flagship product, the 458 spawned many iterations, including the new Freedom eGen Max.



(R to L) Moschetti often walks through the company's California plant to oversee manufacturing, here noting the wiring connections assembled by Khoa Nguyen, electro-mechanical assembler.



Moschetti talks with Anthony Lopeman, production and quality control manager, about manufacturing at Mission Critical Electronics' plant in Costa Mesa, California.



(L to R) Bobby Long, manufacturing engineer; Donnie Nichols, documentation specialist; and Riley Moore, product engineer; inspect an Xantrex Freedom Air systems air conditioner.

Beginning of a Beautiful Friendship

Moschetti said MCE invested in Xantrex after the acquisition because the parent company is genuinely interested in growing the brand in the mobile market. To support the company, MCE integrated Xantrex into its Vehicle Power Division, led by President Dale Tompkins, who works with John Kalbfleisch, Xantrex VP of operations/general manager.

According to Mitul Chandrani, Xantrex director of marketing, growth under MCE has been swift, and considerable. He said inverter and inverter/charger sales nearly doubled in 2021.

"(They) are outpacing the growth of the RV market, in terms of the number of units built, by 100%, which is an outstanding achievement," he said.

Additionally, Xantrex's 6,600-square-foot Elkhart, Indiana, warehouse added 196 pallet positions in December, expanding racking space by 40%. The facility's staff increased by 40% in 2021. Aaron Sprunger, a sales application engineer focused on RV OEMs, joined the team in August. The company also added Vicki Simmons, OEM sales manager, to work under Senior RV OEM Sales Manager Bob Tooker. Brandon Mantz joined the team as an RV aftermarket sales manager leading RV distribution and the dealer network.

Moschetti said everything begins with the applications engineering, project management and sales teams, as they are the closest to the customer. When MCE conceives growth, the company starts with the voice of the customer, either the OEMs or the end-users buying RVs.

"We want to stay close to them, to learn what problems they are having and develop solutions to address those needs," he said. "This is a really important market to us...and we are excited to be here."

Moving forward, MCE plans to grow its talent pool and product investments. The company is expanding RV solar options and recently

moved its Vancouver-based operations to a new facility. Chandrani said the new location is about 25% larger and boasts more modern amenities.

Moving Forward Together

Moschetti said Freedom eGen Max is a key component to sustaining MCE's recent momentum because he believes the system is a "clear solution" in the clean energy space. He sees the technology as critical to the RV industry.

"All the auxiliary equipment that goes onboard a specialty vehicle—whether it is a firetruck, RV or utility work truck—those needs are so complex and diverse. It will be difficult for the chassis manufacturers to come up with universal solutions, so electrification will be slower," Moschetti explained. "That is why solutions like eGen and eGen Max are really valuable."

Freedom eGen and Freedom eGen Max replace traditional gas and

propane generators with a lithium-based battery solution. Moschetti said the systems not only offer a cleaner and greener power alternative, but they also ensure heavier loads can run longer. Power replenishment can come from multiple charging sources, including solar, grid power when available and a high-amp, dedicated alternator when the motorhome is running. The company considers Freedom eGen Max to be an "advanced and enhanced" version of Freedom eGen, as it further extends capability by interfacing with both the engine (to eliminate idling) and the air conditioning system (to provide automatic climate control).

"There is nothing with this level of integration on the market," Moschetti said.

The cornerstone to Freedom eGen Max is ZeroRPM's idle mitigation technology. Once a vehicle is in park, ZeroRPM's system automatically shuts down the engine and provides



Brett Foust, lead production technician, prepares to conduct a charge/discharge test on a lithium-ion powered air conditioner used in ZeroRPM and Xantrex's eGen Max system.



Moschetti led acquisitions of Xantrex in 2018 and ZeroRPM in 2021.

continuous power to onboard electronics and HVAC equipment. When a vehicle is supporting extended stationary use, the system turns the engine on and off to recharge the batteries as needed.

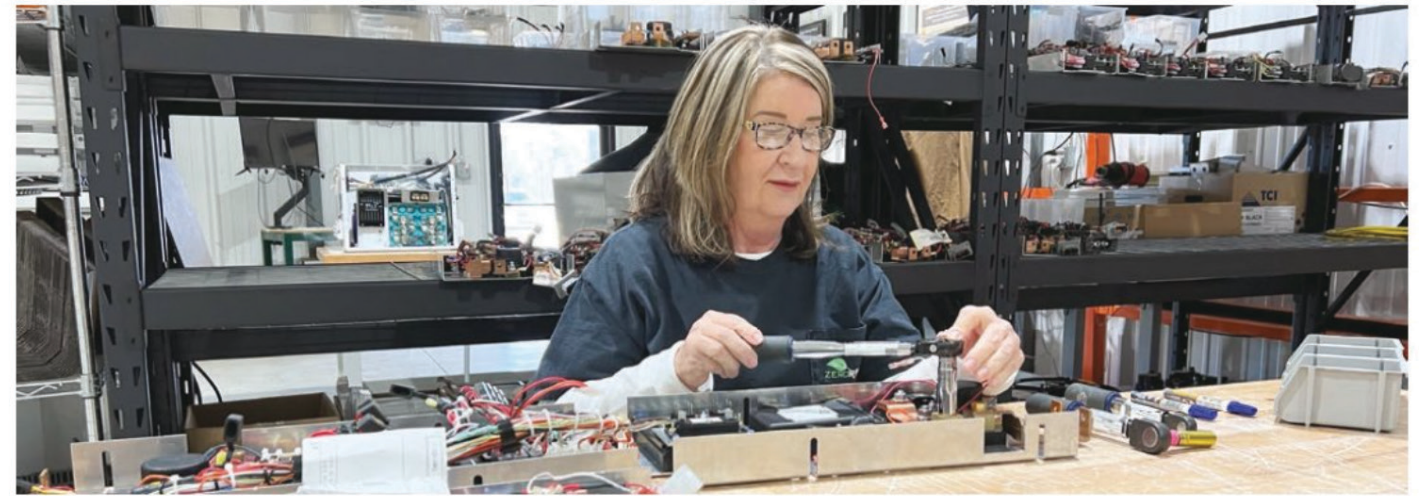
Before MCE's July 2021 acquisition, ZeroRPM's strength was in the work truck, government and emergency vehicle markets. Moschetti respected the company's work and its anti-idling technology. When he met ZeroRPM's founder, Lance Self, and the two became friendly, networking gave way to partnership. Through a technical and distribution agreement, MCE offered ZeroRPM's patented products to its market. Shortly thereafter, Moschetti and Self decided to bring ZeroRPM into the MCE family.

The acquisition strengthens MCE's presence in the vehicle electrification space by providing new production capabilities and technical know-how, Moschetti noted. With ZeroRPM on board, MCE's growing lithium battery business can better control its inventory by manufacturing its own batteries. The company can also tap into ZeroRPM's extensive knowledge of battery management and integrating systems.

Combined with Xantrex's RV market expertise, Moschetti said "the brain-power is impressive."

He cites how a recent effort between ZeroRPM and Xantrex led to a new lithium battery range, which Moschetti calls an "unmatched" market-leading solution. The Xantrex Lithium Ion Iron Phosphate battery is designed to withstand harsh operating environments, like those found in mobile and marine applications. According to the company, the battery lasts up to 6,000 cycles compared with traditional lead-acid or AGM batteries, which typically last 400–500 cycles. Users can view real-time operation data via an optional remote panel or through the Xantrex mobile app. UL certification is currently in process, and RV-C capability is being finalized.

More important, Moschetti said, MCE packages these new batteries to stack atop one another in any



Rita Schiehl, lead production technician, uses a torque wrench to secure bolts onto the electronics tray used inside Xantrex's lithium-ion batteries.

direction while remaining safe and functional. Since RV storage space comes at a premium, parallel stacking options ensure a more flexible OEM installation, he noted.

Thinking Ahead

The collaborative spirit is also helping to turn Freedom eGen into "a family of products with a range of capabilities," Moschetti said. Freedom Air, a lithium-based air conditioning system designed to improve cabin cooling, was recently introduced to the aftermarket.

Long refrigerant pathways, like those found on diesel pushers, rely on a rear engine-mounted compressor. Cooling the cab "from 40 feet away" is inefficient and often results in diminished output, according to the company. Freedom Air installs next to forward vents, decreasing pressure loss. Additionally, the system offers an engine-off AC option by powering the factory air system via an auxiliary power supply. Consumers can use this option to save fuel, supplement factory air conditioning or simply provide cooling relief if the rooftop AC unit fails.

MCE is focusing R&D on connected solutions. Moschetti said users want the ability to check battery status or solar output from a phone app. Xantrex Gateway (PN 808-0888), set to debut in 2022, will provide that capability.

The subsystem solution serves as a central hub, he explained, where all electrical system components connect

and "talk" to one another. Xantrex Gateway can interface over RV-C or Wi-Fi and connect with a smartphone application so users can view, monitor and configure products within the Xantrex ecosystem. In addition to end-user gratification, Moschetti said the subsystem also better serves RV OEMs who need simple, all-in-one integrated solutions.

"I'm really excited about the future of [lithium] technology, for users to have that level of battery power available. It creates a lifestyle opportunity they didn't have before."

– Kevin Moschetti

Looking forward, Moschetti said MCE plans to keep pulling this thread – integrating products and technology with a vehicle's key systems; integrating complete solutions with OEMs' manufacturing and distribution processes; and integrating different schools of thought to create revolutionary solutions.

"I think that's one of the things that really differentiates us in the marketplace," Moschetti said. "We're not

trying to be a cut-rate, low-cost feature provider. We're the company that wants market-leading capability and features and market-leading quality, reliability and responsiveness in terms of delivery."

He said connected capabilities will remain top of mind but evolving the company's solar/solar charge controller offerings is on the agenda.

"Another real critical part of the future is 48-volt power," he said. "As power needs go up, 48-volt solutions are far more efficient for meeting those high-power needs."

MCE currently offers 48-volt batteries and inverters, including Freedom EX 4000, a 4-kilowatt inverter/charger/converter launched last year.

Rather than discussing the impact MCE will have on the industry five years from now, Moschetti said he will focus on the working partnerships MCE creates.

"I like to think of the MCE family as an extension of our OEM partners' operations, whether that is in our engineering team helping to solve their problems, our production capabilities helping serve their operations or our own product management and sales team operations bringing voice-of-customer information back home. That's how we see ourselves: being more tightly integrated with our OEM and distribution partners, and more closely connected with the RV owners and operators to make sure their needs are met." **RVN**