



Thriving on rock-solid stability and radical change

Later this year, Morningstar Corporation is launching two product milestones: GenStar, a high-end DC charging system, along with a complete line of SureSine DC/AC inverters. Since the company's inception in 1993, Morningstar has been regarded throughout the off-grid solar industry as a leader in solar charging technology. For the brand to introduce an all-new charging system, with revolutionary features and capabilities, warrants the term 'breakthrough'.

For almost as long as Morningstar has been a leader in solar charge controllers, its customers have been in need of off-grid inverters with the same industry-leading quality and durability. This ensures that the systems they design and install have no weak links and can truly be 'Morningstar

throughout'. The company's all-new SureSine line was precisely engineered to meet this need.

PES was able to take advantage of a break in an understandably busy schedule at Morningstar to talk to three of the people responsible for the product launches:

Lee Gordon, President and Co-founder, Jim McGrath, Director of Sales, and Bill Mellema, Director of Product Development.

PES: Welcome back to PES Solar. You were there at the very beginning, and you've seen a lot of changes and churn in the solar industry. Could you start off with your



Lee Gordon



Jim McGrath



Bill Mellama

secret for Morningstar’s stability and ability to maintain its reputation for nearly 30 years now?

Lee Gordon: Of course, but truthfully it’s not much of a secret. If you have built the best culture you can, and remain absolutely committed to both your customers and your employees, you keep the best people and your customers keep their confidence and loyalty in you. That’s not just talk at Morningstar, but something we put into action in 1993 and have lived by ever since. The main ingredients of any ‘secret sauce’ in our brand are consistent management and independence. One can’t overestimate how important they are.

PES: Can you expand on that?

LG: On independence, that’s simple. We don’t answer to a parent company or investment firm, unlike some of our competitors. Over the years, while many of them were being repeatedly bought and sold, we moved into an employee ownership model, which serves as an incubator for both our stability and excellence.

It’s obvious how our stability is a product of employee ownership, because our people remain truly vested in the brand and its success and they remain with us. We enjoy high morale and unprecedentedly low turnover as a result.

Excellence as a direct result of employee ownership is more complex, but it’s actually the source of our products’ differentiation and competitive advantages. We can design to higher standards because we don’t have to answer to an externally-mandated bottom line.

For example, our engineers can lay out circuitry for performance and longevity instead of economy, and select ‘over-spec’ components, when the average-grade ones used by our competitors might do. When you don’t have someone standing over you

insisting that you cut corners, you can simply design and build better.

PES: How do you apply those principles every day at Morningstar?

LG: These ethics go beyond engineering and manufacturing. When employees are owners, they feel that their own reputations ship with every product and they dedicate themselves

to ensuring customer satisfaction. It also goes well beyond the initial sale. Our customer surveys consistently show Morningstar graded as the top brand in terms of customer support.

You’ll see both the stability from consistent management and the excellence we achieve through employee ownership converge in the



New SureSine off-grid inverter series; 150W-2,500W

new products we're excited to be talking about today. You know, being customer driven is an overused catchphrase in business, but not at Morningstar.

It's our stability that has enabled us to build unusually long and deep relationships with our customers, and our excellence through employee ownership that maintains them. It is fundamental to who we are, and what we build, and how we build it. I'll let our sales director, Jim McGrath, explain how that translates into our new SureSine inverter line.

Jim McGrath: Firstly, we didn't just decide to get into the inverter business. Rather, it was our customers who got us into it, after decades of high expectations set by our solar charge controllers. We always had requests for off-grid inverters built to the same level of quality and craftsmanship, along with their wish list of innovative features and capabilities to be included in 'Morningstar inverters'.

That's no 'off the shelf' type of product, and our new SureSine inverters are the polar opposite of me too thinking. We started with a superior industrial-grade baseline, since so many of our customers are focused on that segment and have mission critical applications requiring critical power solutions. Its foundation is a premium toroidal low-frequency transformer for improved sinewave stability and superior power quality. Of course, since it's a Morningstar, there is no cooling fan.

Next, we added full communications capabilities, including USB, ethernet, EIA-485, CANBUS, and Bluetooth for wireless communications. That includes wireless android and iOS utility apps for set-up and monitoring our inverters using remote devices. We also designed-in AC hardware and receptacle options on selected models, and multiple AC and DC voltage choices, along with NRTL safety, noise and performance certifications to make SureSine a true world product.

Most importantly, our customers wanted a best-in-class Morningstar of inverters to



Inside the new SureSine off-grid inverter

seamlessly integrate with our charge controllers they've come to depend on. SureSine is engineered for system-level integration and communication with our existing controller product line. We've also accomplished some re-invention there too, which Bill Mellema can talk about.

Bill Mellema: We knew that integrators, installers and system designers were looking for more capable-and feature-rich solar controllers. What's currently out there is a plethora of accessories and modules that they have to cobble-together with cabling and dongles to get existing controllers where they need them. And we thought if anyone can come up with a fully integrated DC charging system eliminating all of that, we can. GenStar is the result: the industry's first fully-integrated solar DC charging system.

We started with an all new design incorporating lithium DNA, acknowledging the future of energy storage and in keeping with the goal of delivering a truly future-proof product. All the most requested key communication and control features are built-in. Essentially, GenStar combines the power and stability of our iconic TriStar family of charge controllers with our most forward-thinking research and development yet in the field.

Like our TriStar controllers, GenStar enables oversizing PV arrays to meet today's need for larger systems, and also provides integrated load control: 30 Amp capability, unique for controllers in this class. It delivers WiFi and Bluetooth connectivity and full network integration without the need for wiring on adapters or outside equipment, it's all built-in. And it's fanless in the Morningstar

tradition of power electronic design, making it more efficient and reliable than any other high-powered controller out there.

Along with the most requested features, we gave GenStar the capability of being easily upgraded and expanded with new features and technologies, through our revolutionary ReadyRail architecture and ReadyBlock expansion line. ReadyBlocks simply snap into the GenStar's ReadyRail to deliver any additional features and capabilities needed. For example, battery metering/monitoring and key measurements are enabled by the ReadyShunt. The ReadyRelay provides signaling and advanced load control, and the ReadyBMS delivers full communications and control with lithium batteries.

With GenStar and its designed-in flexibility and adaptability, system designers need never worry about obsolescence or making the wrong decision in the initial investment. GenStar can grow with a system and network architecture as their needs evolve.

PES: What has the early feedback on the new products been like so far?

LG: GenStar and our new SureSine inverters are just debuting now at RE+/Solar Power International in the US, and the interest in them along with orders for them are testimony to our approach of painstaking engineering combined with customer intimacy to deliver the best-in-class solutions for their needs. We'll be following up on GenStar and SureSine with even more innovation in charging, control, communications and power conversion, and look forward to telling readers about that very soon.

www.morningstarcorp.com



GenStar MPPT fully-integrated DC charging system