

RUNREADY™

SELF SUSTAINING

SOLAR POWER CUTS FARMER'S COSTS



A WATCHFUL EYE

Cat® Connect remotely monitors unmanned sites

CAT REMOTE ASSET MONITORING

Making connected assets count



Powering a Brighter Future

2022 might be viewed as a defining year when the energy transition gained traction. “Energy transition” refers to the global energy sector’s shift from fossil-based systems of energy production and consumption—including oil, natural gas and coal—to renewable energy sources like wind and solar, as well as battery energy storage systems.

The increasing penetration of renewable energy into the energy supply mix, the onset of electrification and improvements in energy storage are all key drivers of the energy transition. Regulation and commitment to decarbonization have been mixed, but the energy transition will continue to increase in importance as investors prioritize environmental, social and governance (ESG) factors.

Spurred by structural, permanent changes to energy supply, demand, and prices, the energy transition aims to reduce energy-related greenhouse gas emissions through various forms of decarbonization.

After years of depending on government regulation for growth in the sector, renewable energy sources have become a powerful and cost-effective source of electricity. The costs of both solar and wind have fallen so drastically that in some regions of the U.S., as well as in the U.K. and Europe, wind power has become less expensive than traditional high-carbon energy resources.

As costs continue to fall and wind and solar become mainstream, the renewable energy sector will only keep growing, and become recognized as a strong investment opportunity. The International Energy Agency forecasts the world’s total renewable-based power capacity to increase 50% between 2019 and 2024.

The final *RunReady* issue for 2022 reflects the growing trend toward decarbonization and the increasing adoption of renewable energy and new technologies:

- A hog farm in Minnesota is offsetting its energy costs with solar power.
- A municipal utility in Tennessee backs up a self-healing grid with Cat® generators, and monitors the status of unmanned substations with remote asset monitoring technology.
- A recent sustainability conference in Nashville hosted by Caterpillar’s Electric Power Division drew consulting-specifying engineers and Cat power systems representatives from dealerships across North America to learn more about Caterpillar’s growing portfolio of renewable energy solutions and associated technologies.

Thanks for reading, and happy holidays.



DID YOU KNOW?

The rental team at Cat dealer MANTRAC provided 13 Cat gensets and ancillary equipment to power the DIOR Men pre-fall 2023 show on Dec. 3 at the Giza necropolis. The French fashion house unveiled the collection after sunset in front of the great pyramids of Egypt in a spectacular display that set a new bar for destination shows in the post-pandemic period.



HYDROGEN POWER DEMO

Commencing in 2023, a low-carbon-intensity fuel project with District Energy St. Paul (Minnesota) will demonstrate a 2.0 MW combined heat and power (CHP) system fueled by various combinations of hydrogen and natural gas.

Participants will develop and demonstrate a hydrogen-fueled power delivery and control system to evaluate its greenhouse gas emissions profile, reliability, durability, and barriers to adoption. To fully assess every aspect of the hydrogen solution under real-world operating conditions, power and heat from the demonstration project will feed into District Energy St. Paul’s distribution system.

Supported and partially funded by the U.S. Department of Energy’s (DOE) Office of Energy Efficiency and Renewable Energy (EERE), the project will be led by Caterpillar in collaboration with District Energy St. Paul and the National Renewable Energy Laboratory (NREL).

“As a leading authority on CHP systems and the deployment of advanced energy technologies that promote sustainability, District Energy St. Paul is the ideal choice for hosting this demonstration,” said Jason Kaiser, vice president for Caterpillar’s Electric Power Division. “The project will help Caterpillar further extend its expertise in hydrogen-fueled power systems performing under the highest expectations of real-world applications.”

For the demonstration project, Caterpillar will deploy a flexible-fuel CHP system that includes the Cat® Master Microgrid Controller (MMC) and a Cat G3516 generator set packaged in a standardized, factory-assembled solution to minimize complexity and infrastructure requirements.

The MMC will manage load dispatch requirements as the power system demonstrates the performance, efficiency and emissions characteristics of a hydrogen-fueled solution. Using 100% hydrogen fuel, 100% natural gas fuel, or natural gas blended with up to 25% hydrogen, the project will compare how hydrogen and hydrogen blends can be integrated into a waste-heat-and-power solution.

District Energy St. Paul is a recognized leader in environmental and energy sustainability, earning a Global Sustainability award from the International Energy Agency and recognition from the United Nations Environment Programme.

Ziegler, the local Cat dealer, will provide on-site support and system maintenance for the project.



IN THE SPOTLIGHT:

4 Self Sustaining

An Iowa farmer was building a barn for 2,400 hogs last year when his Cat dealer informed him that he could cut the cost of power to the facility with solar energy. More than a year later, Kory Hagen is saving an average of \$1,200 per month on his utility bill with a 50 kW solar array.

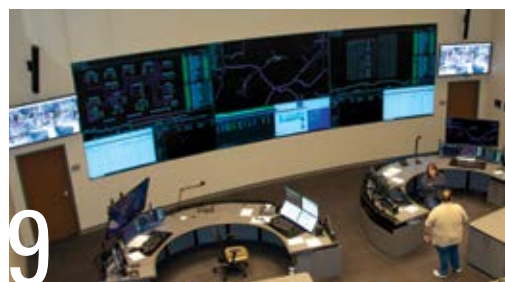
FEATURES



8

8 Smart Solar Solutions

Consider the cost-saving potential of solar energy



9

9 A Watchful Eye

Cat® Connect remotely monitors unmanned sites

12 Cat® Remote Asset Monitoring

Making connected assets count



12

14 Sustainability Summit 2022

Consulting engineers learn more about cutting-edge solutions to help customers meet their ESG goals at Nashville conference

Generator set owners should complete walk around inspections of their equipment. This should only take a few minutes and can help avoid costly repairs and unnecessary accidents.



RunReady™ is published by High Velocity Communications Inc. on behalf of your Cat® Dealer. Publisher, Tim O'Brien • Editorial Director, John Rony • Senior Art Director, Eric Valk • Director of Client Services, Kelly Pemper. Every attempt has been made to ensure specifications are accurate. Because specifications are subject to change without notice, check with us, your Cat Dealer, for the latest equipment information. Some photography provided courtesy of Caterpillar Inc. High Velocity Communications Inc., 1720 Dolphin Drive, Suite D, Waukesha, WI 53186-1489. Phone (262) 544-6600. Please submit address corrections and changes via e-mail to: Kelly@HighVelocityCommunications.com. © 2022 High Velocity Communications Inc. Printed in the U.S.A. Volume 13 Number 4. © 2022 Caterpillar. All Rights Reserved. CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, "Caterpillar Yellow," the "Power Edge" and Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission. VisionLink® is a trademark of Trimble Navigation Limited, registered in the United States and in other countries.

SELF SUSTAINING

SOLAR POWER CUTS FARMER'S COSTS



From an early age, Kory Hagen was always by his dad's side helping out on the family farm in Cylinder, Iowa. "Even if he started at 2 a.m., I was always there beside him," Hagen recalls. "I'd bounce around in the tractor with him all day long, because I loved it. Like it is for so many, farming was in my blood. And so I'd seen it all—he taught me everything. He gave me a lot of responsibility when I was very young."

When Hagen graduated early from high school in 2011, he started his own excavating business.

"I was still farming with my dad and decided I wanted something with my name on it," says Hagen, who is now 30. "We had a guy install a water line at the farm, and he was almost fully retired. He had a backhoe and I helped him do it. He said 'A young guy like you needs to buy this and take off. I'm tired of jumping down holes.' So, a month later I bought the machine, and the business just kind of took off from there."

Running his own business at age 19, Hagen developed connections with area farmers as he took on tiling jobs and excavated septic systems while still helping his dad



on the farm. The excavating business continued to grow as he built pads for garages, grain bins and machine sheds, while also excavating basements and eventually doing site prep work for grain elevator operators.

Once the excavating business became established, he started a trucking business on the side, hauling grain and other commodities for area farmers. If that wasn't enough, he later started Hagen Ag Services, spraying crops and providing seed for farmers.

Added responsibilities

In 2013, Hagen had succession of the family business abruptly thrust upon him in his early 20s when his father suffered a stroke on the 4th of July. The elder Hagen had to relinquish primary management

of the farm to his son, who was ready to take on the responsibilities of running a 1,000-acre farm.

Before his Dad suffered the debilitating stroke, Hagen could always fall back on him for guidance. But now he was totally on his own.

“Even after they retire, most farmers will tell you they’re never going to know it all,” he says. “There’s so many different things that get thrown at you every single year. You think you’ve got things figured out, but you don’t. You just learn some new things every year and keep going. So, it was scary at first. I learned a lot the first two years—I’ll put it that way.”

Even in the midst of running successful excavating and trucking businesses, Hagen

Continued on page 6

CUSTOMER PROFILE

Hagen Farms

Location: Cylinder, Iowa

Application: Solar and standby power

Cat® Equipment: 420 photovoltaic solar modules, DG50 gas standby generator, 299D3 Compact Track Loader, 329D L Hydraulic Excavator



hit the ground running and found ways to modernize the operation his father had successfully run for years. He decided to focus on no-till farming, a practice that ultimately benefits the environment.

“We used to run a more traditional farm, operating five tractors and two older combines for beans, ripping up everything, and cultivating twice,” Hagen says. “It was a tough transition, but I decided to go the strip-till route. That eliminated the need to buy a ripper, cultivator and additional tractor. We could just lease one new tractor and use it to farm more than 900 acres.”

After a few growing pains, Hagen learned to run his father’s farm more efficiently and sustainably with a five-man team. Today, he makes most of the decisions but also has a small team of advisers, including a banker who also provides assistance with marketing and an accountant Hagen has known since 8th grade.

“It was hard going from farming with my dad to being 100 percent on my own,”

“There’s no sense in paying somebody for the next 60 years when you can generate the power yourself.”

KORY HAGEN, Owner
Hagen Farms



Hagen says. “If anything failed, it was nobody’s fault but mine, which was the biggest challenge. But I’ll always farm, no matter what. It’s very peaceful; and once it’s in your blood, it’s there for life.”

Cat dealer suggests solar power

Today, Hagen balances the responsibilities of operating the farm along with the excavating, hauling and ag services businesses. As a key supplier of both ag and construction equipment, Chris Thiel of Ziegler Cat first made contact with Hagen in 2014 when he called him about a tractor.

In the early days, Hagen bought farm

equipment from Ziegler and rented Cat® machines for bigger projects.

“I was still small enough that I couldn’t afford a \$300,000 excavator,” Hagen recalls. “I didn’t really know where the business was headed, so we started renting some equipment from Ziegler.

Hagen’s relationship with Ziegler has grown from initially needing a tractor to contacting Thiel whenever he needs a new equipment solution. One of those innovative solutions includes a 50 kW solar array to support a new barn for 2,400 hogs that was built in summer 2021.

Based on a similar installation that supports another hog farm 45 miles away,

Chris Thiel (L) of Ziegler Cat and Kory Hagen.



Thiel suggested the solar array to Hagen as a way to defray energy costs. It was designed, engineered and installed by Ziegler Power Systems. Over the life of the system, solar power is projected to provide a \$375,000 cost savings.

“The cost of power increases every year no matter where you’re getting it from,” Hagen says. “Based on the amount of power the hog building pulls with all the fans constantly running inside, I decided it was time to generate my own power to support it.”

There’s a misconception that solar is only for large businesses and big power users, says Kristen Shea, a renewable energy sales engineer for Ziegler Power Systems. But even for farms like Hagen’s, where energy bills reach about \$1,200 per month, the savings can really add up and make sense.

“There’s no sense in paying somebody for the next 60 years when you can generate the power yourself,” Hagen says. “The money in my pocket is better than ending up in somebody else’s.”

Once Thiel mentioned the solar option, the process moved quickly.

“We had a meeting in Kory’s shop and discussed some preliminary data and what it might look like,” Thiel said. “We have a team of specialists. I’ll gather some information and give it to them. Then we’ll have a joint meeting after that with the customer to determine if it makes sense financially. And if it does, we involve subcontractors who assist with the installation.

“When we met with Kory, we talked about the 25-year warranty from Caterpillar for the solar panels,” Thiel said. “Within nine months, we had something in the ground.”

Hagen Farms also utilizes a Cat DG50 gas standby generator that supplies backup power to grain bins to keep fans operating so the grain stays dry to prevent spoilage.

A solid choice for farms

While solar panels might not make sense for every farm—it depends on a variety of factors—in Hagen’s case it did.

“Kory has a high load demand at




the hog building that he can utilize and offset a lot of his energy costs throughout the year,” Thiel says. “There are also some great tax benefits and accelerated depreciation opportunities that work to his advantage.

“A lot of farms are opting for solar energy,” Thiel says. “It’s easy on the eyes for when you’re driving by—it doesn’t clutter the farmstead. And it’s very low maintenance. The solar array just sits there and does its job. It’s a great way to offset some of the high energy costs that larger farms typically have.”

Whether it’s servicing his farm equipment, his Cat construction machines

or his standby generator set, Hagen knows he can count on the unfailing support of his Cat dealer.

“Where Ziegler and Caterpillar shine is the parts and service support that’s behind everything they sell,” he says. “As a customer, it’s just an excellent experience to know that any day of the week, any time of the year, if you have an issue, you’ll receive the answer right away. And if someone doesn’t know the answer, they find the answer for you. They don’t just push you off to somebody else.

“Based on my experience with Ziegler, it feels pretty much like a big family.” 

SMART SOLAR POWER SOLUTIONS

CONSIDER THE COST-SAVING POTENTIAL

When you want maximum fuel efficiency, minimum operating costs from renewable energy and every minute of productivity you can achieve, our dealership can help you in every aspect of your operation.

Cat® Solar Power Solutions designs and maintains smart solar power systems for commercial and industrial photovoltaic (PV) modules so your operation runs more efficiently than ever.

Our experts are ready to provide the support you need, from planning to maintenance of custom commercial and industrial solar panel systems and everything in between. We're committed to working with you to make your operation more successful.

Cat photovoltaic solar modules

Cat PV solar modules are low maintenance, easy to install, tested beyond industry standards and generate more power than multi-crystalline silicon modules. And our dealership is with you every step of the way, from delivery of your system to service, financing, parts, and more for the life of your system.

Powered by advanced solar modules that are elevating industry standards with improved performance, the Cat Solar Microgrid system offers:


- **Superior Performance.** Reliable and predictable energy in all climates and applications, particularly in high temperature, high humidity, extreme desert, and coastal environments where the Cat system generates more energy than multi-crystalline silicon solar modules.

- **Robust Modules.** Modules are independently tested to pass accelerated life and stress tests beyond industry standards (including Thresher, IEC, ISO, UL, CSI, MCS, CEC and other international standards) and come with warranty protection.
- **A Scalable, Compatible, and Easy to Install System.** A fully scalable, pre-engineered solar microgrid system.

Microgrid Solution

A Cat microgrid power system helps you better manage the energy costs of your operations through a customized solution that integrates renewable power into your business. We can help you generate your own power through an optimized combination of photovoltaic solar modules, energy storage, and advanced monitoring and control systems.

Smart microgrids from Caterpillar generate power efficiently wherever and whenever it's needed without transmission lines and transformer losses.

Our high-performance, scalable systems are designed and built using standardized building blocks that are easy and quick to install—even in the most challenging environments—and can grow as your operations grow. 

Our dealership will work with you to design a customized solar panel system that delivers the power you need. Call us today for a no-obligation consultation regarding solar power's cost-saving potential.



A WATCHFUL EYE

CAT[®] CONNECT REMOTELY MONITORS UNMANNED SITES

Tucked away in the pastoral east Tennessee River valley, a once-rural electric company is widely recognized today as one of the region's leading multi-service utility providers with a well-earned reputation for going the extra mile.

Lenoir City Utilities Board (LCUB) was formed in 1938, when Lenoir City signed a contract with the fledgling Tennessee Valley Authority (TVA) to deliver TVA-supplied electricity to its residents and businesses. The tiny electric department only had four employees and 317 customers. By the mid-1940s, LCUB's services expanded to include water and sewer under the

authority of a newly created Water and Light Commission with citizen oversight.

It was during this period that LCUB clearly demonstrated its commitment to support the broader region, working diligently to build a power distribution network for the neighboring West Knox County community. By 1945, LCUB had expanded its service area well into West Knox County and Solway near the Anderson County border. LCUB also invested heavily to improve the water system and build an additional reservoir, and shortly thereafter added a natural gas distribution system to its utility services.

Today, it serves 65,430 electric customers in a four-county service region, plus 9,005 water customers, 6,277 natural gas customers and 5,362 wastewater customers, making LCUB the eighth largest utility among 154 TVA distributors.

A technology leader

Through the years, LCUB has focused on providing the highest quality services, using the most advanced technologies to meet the needs of its growing customer base at the lowest possible rates.

LCUB is deploying state-of-the-art

Continued on page 10

technology in a variety of ways. An automated metering system for all utility services has been instituted that streamlines billing, ensures accuracy, and provides proactive notification of any problems to its customers. Advances

in this system enable customers to manage their utilization, thereby reducing their bills.

LCUB's newly installed SCADA system and OMS system help engineers identify problems and provide quicker response times when outages and other problems occur.

LCUB is also installing the latest technology in substation relaying/automation and field reclosers. The installation of these technologies, along with LCUB's newly installed 82-mile fiber ring, will enable the utility to start toward the operation of a self-healing grid. This will automatically restore sections of the power grid and pinpoint the location and cause of an interruption.

With 16 separate substations, Lenoir City Utilities has installed Cat® diesel generators to provide backup power in the event of an outage, says Lee Hartline, director of information technology for LCUB. Ranging in

size from 35 to 60 kW, the Caterpillar generators are located at substations where the fiberoptic nodes are housed.

"Upon sensing there's no utility power, the Cat generators will automatically start," Hartline says.

Remote monitoring

The Cat generator sets are housed in outdoor enclosures, and are equipped with Cat Connect, a remote asset monitoring technology that checks the status of the gensets. It enables staff at LCUB's operations center to receive:

- Continuous data on engine and electrical parameters
- Real-time alerts and alarms
- Engine or generator faults that signal a potential shutdown or failure to start

"I'd say the largest advantage is the capability for customers to have eyes on their remote assets," says Andy Downs, a sales representative with Cat dealer

CUSTOMER PROFILE

Lenoir City Utilities Board

Location: Lenoir City, Tenn.

Application: Standby power

Cat® Equipment: Cat Connect remote asset monitoring, C.4.4 diesel gensets (15), XQ60 power module



Stowers Machinery. “LCUB has multiple substations that are unmanned and not close to their central office. So, Cat Connect helps them keep eyes on those locations and lets them know the status of their gensets.”

Cat Connect can monitor an essentially unlimited number of gensets at remote sites and display them all in a single dashboard view. It can synthesize data across multiple sites and geographic areas and help users compare the performance of sites and individual assets.

Matty Hagy, a product support and service representative with Stowers, worked with LCUB engineers after the initial installation and provided instructions on using the remote monitoring system.

“So from our operations center, or from any location, we can monitor it by simply logging in and using a web interface,” Hartline says. “And it gives us the real-time status for all of our equipment. We can monitor fuel levels, battery voltage, alarms, notifications—everything pertinent to keeping our equipment run ready.”

If there is an operating issue with one of the gensets, LCUB staff receives a text message and an email notifying them of the problem.

“It will tell them if it has low battery voltage, for example,” Downs says. “It’s real-time data. So they would know if a generator didn’t start so they can dispatch their crews or call one of our technicians for help.”

“And it also gives our technicians insight into what the problem could be,” Downs says. “So this has the effect of reducing trips to the generator location, which in turn will save the customer money and return the equipment to operation a lot sooner.”

One of the ancillary benefits of Cat Connect is lessening the amount of manpower required to service generator sets, adds Brandon Lynn, a senior digital product manager for Caterpillar Electric Power.

“During the peak of the COVID-19 pandemic, it was really important for



“We can monitor it by simply logging in and using a web interface. It gives us the real-time status for all of our equipment. We can monitor fuel levels, battery voltage, alarms, notifications—everything pertinent to keeping our equipment up.”

LEE HARTLINE, Director of Information Technology, LCUB



folks to stay out of their facilities,” Lynn says. “So what it comes down to is, how can I still do my job but maybe I don’t need to be on-site. If we can use technology to be more efficient, then we don’t need as many people to be physically present, and we can better address customer needs.”

Hartline cites a case where one of LCUB’s substations experienced an outage during a storm. Power was not restored at the substation because it was not affecting anything else on the local grid. The Cat generator started automatically and ran as it was meant to, but eventually it ran low on fuel. At that point, a notification was sent that the generator was running low on diesel fuel and a fuel truck was dispatched.

Cat Connect can also help in staying on top of scheduled maintenance.

“You can use it as part of the regular

maintenance schedule,” Downs says. “If you already know it’s going to need a battery, you can have that on the truck with you. It just gives customers a better opportunity to stay on top of equipment maintenance.”

Another key facet of Cat Connect is monitoring the overall condition of the generator set. It can detect a small problem before it becomes a larger, more costly problem.

“You could have a coolant heater that starts to fail,” Downs says. “One of the main advantages of Cat Connect is identifying a problem and making a repair before failure, before something more serious happens.”

“You can catch a potential problem before it fails at 2 a.m. in the morning when customers aren’t ready to handle it. So this way, we can proactively keep the equipment in tip-top shape.” 📱

CAT[®] REMOTE ASSET MONITORING

MAKING CONNECTED ASSETS COUNT

In a real-world example, a national firm with real estate assets spread across the country bought an office building. But the new management was not aware that a standby generator set was installed on the roof. What's more, the building was located in an area subject to grid instability due to an impending hurricane.

"Imagine buying a building and not knowing you own a generator, and

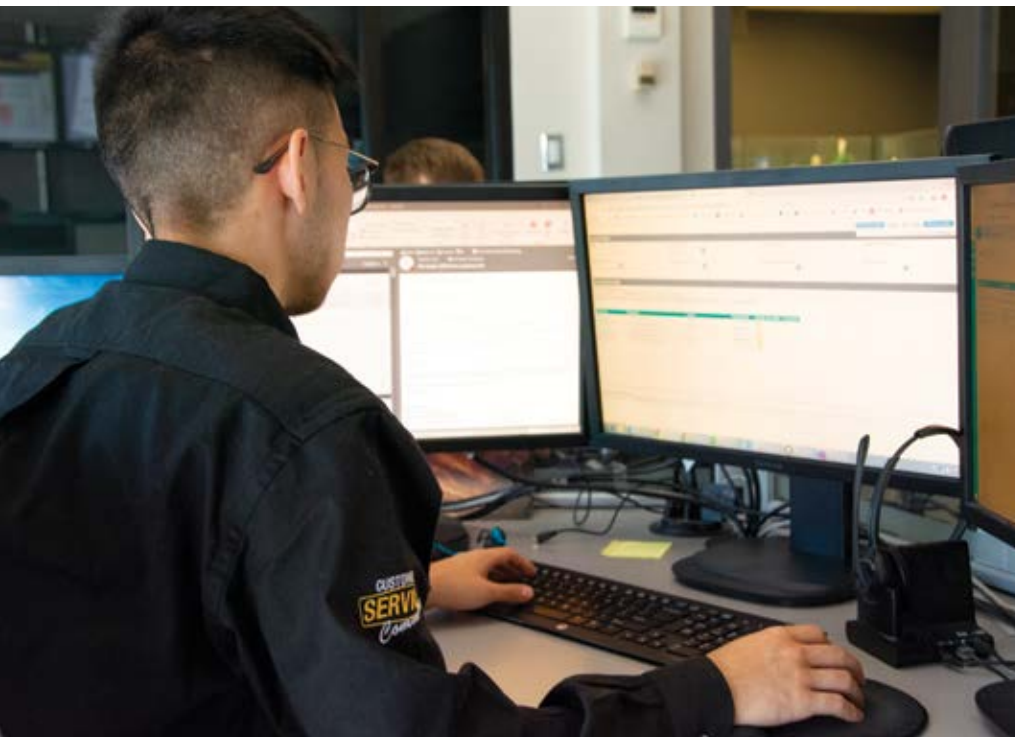
worse yet, if it's even ready to run," says Brandon Lynn, senior digital product manager for Caterpillar Electric Power. "This is something that happens."

It pays to know if a standby generator is ready to run, especially in the case of data centers, hospitals, and other mission-critical service providers where the loss of power for just several minutes can result in the loss of millions of dollars, as well as damaging the reputation of the business.

Cat[®] remote asset monitoring (RAM) can avoid that scenario by providing real-time alerts. A Cat generator set comes factory-equipped with the technology, which when activated, provides up-to-the minute information on ready-to-run status, including engine and electrical parameters, fuel level, and current faults. Notifications are sent to the customer via text message and email. The end user can also view a web-based dashboard that displays key status parameters via a mobile application.

A Customer Value Agreement (CVA) enables customers to grant permission to have their generators monitored and periodically tested. They receive status notifications from Caterpillar or their Cat dealer. Alerts could range from a notice about an impending weather scenario to information about a generator with low battery voltage or a low fuel level.

"Let's say it's Texas, and it's summertime and we know there's a heat wave approaching in a specific area," Lynn says. "And we're likely to have instability on the power grid because demand is greater than supply. Renewable sources of energy won't be present during this time, as the wind isn't blowing and the sun isn't shining. I don't want the first time that a customer realizes they have a generator set to be when the power goes out. We can





“It’s just another set of eyes on the product. You’re welcome to do it yourself, but there’s no charge for Caterpillar or your Cat dealer to take care of that for you, it’s included in your CVA.”

BRANDON LYNN, Senior Digital Product Manager,
Caterpillar Electric Power



remotely run their generator and make sure it’s ready to start, before the instability happens.

“If a customer decides to include this in their service contract, we will support that generator set or fleet of generator sets for them,” Lynn continues. “RAM enables my team to proactively test it because we think there’s going to be more load on the grid than it can handle due to excessive heat or an approaching hurricane. We can attempt to start it and call to tell them that it failed, and we’re sending a technician out to get it running before it’s needed.”

Also known as Cat Connect, RAM is especially valuable to organizations with a large fleet of generator sets where lower staffing levels make it difficult to keep tabs on ready-to-run status.

“Now you can receive a detailed report on why a generator failed to start,” Lynn says. “It’s just another set of eyes on the product. You’re welcome to do it yourself, but there’s no charge for Caterpillar or your Cat dealer to take care of that for you, it’s included in your CVA.”

Condition monitoring is a proactive process of evaluating generator sets’ operational data inputs in order to provide maintenance and repair recommendations. It brings together asset data, fluid analysis, inspection results and more to give a complete picture of a genset’s health. One of the challenges is creating awareness about the value of condition monitoring and overcoming complacency.

“Over the last five years we’ve focused on connecting assets,” Lynn says. “But we’re trying to shift from counting how many connected assets we have to making connected assets count—that they are ready to run when our customers need them. One of the challenges we face is to change the minds of some people who are convinced that standby generators are things that just sit there and will always run when called upon.”

Another benefit of Cat Connect is better utilization of available manpower.

“Since the pandemic, nobody has enough people at this point to adequately support the demand that’s out there,” Lynn says. “If we can use technology to be more efficient, then a Cat dealership can better support more customers with the same workforce it has in place.”


Cat Connect represents an insurance policy in that it can lower the total cost of ownership for a generator set or a fleet of generator sets. By continually monitoring the parameters, repairs can be made before failure, which can save money for customers.

Beyond making sure a generator set is ready to run when needed, Cat Connect can also monitor remaining useful life of other components such as filters or coolant. The technology can more accurately predict when to replace a battery than the operation and maintenance manual.

“Now we can tell someone that based on the data and analysis we’ve done that their generator set needs a replacement battery,” Lynn says. “That’s real value versus ‘you have a problem and your generator failed to start.’ So, we’re avoiding that scenario and recommending a solution in advance.”

Monitoring emissions is another facet where Cat Connect is effective. By monitoring fuel burn, it can be used to calculate greenhouse gas (GHG) emissions, which is especially important for customers with generators located in states that have stringent air quality regulations or where they are committed to meeting ESG goals.

For Caterpillar, remote monitoring provides the opportunity to learn more about products in the field and drive customer value through analytics, Lynn says.

“We learn more about how our customers are utilizing our products, and with that information we can think of new ways to provide better service to them. It’s all about reducing costs and driving their bottom line.” 





SUSTAINABILITY SUMMIT 2022



As the world moves toward increased use of renewable energy resources to reduce carbon emissions, Caterpillar’s Electric Power Division held a Sustainability Summit November 7-10 in Nashville. The invited guests consisted of consulting and specifying engineers, as well as Cat dealer representatives from the North American market. They learned more about present and future trends and evolving opportunities to incentivize investments in cutting-edge solutions that help customers meet environmental, social and governance (ESG) goals. Here are some forward-looking comments from selected guests:



In the past couple of years, we’ve done a number of CHP projects involving solar and wind. We get involved in more of the interface and not so much the design of a distributed energy system. We recently updated our long-term strategic plan, and part of our plan is to develop another market sector by offering energy services to our customers.

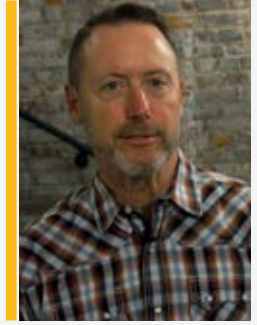
As consulting engineers, we have to be able to sell this to our clients. And hearing from some of the Caterpillar industry experts to see where this is going in the next 10 years is what enables us to speak intelligently when we’re in front of our customers. It provides a little more gravitas than just, ‘Hey, this is what we heard some people are doing in a different part of the country.’ The information and ideas exchange that characterized this conference give us just a little more backbone and substance to have those conversations, which is where it all starts.

WES STILES, Director of Electrical Engineering
Barton Associates, York, Pa.

It was really informative to hear from all of the different Caterpillar departments that help monitor how customers are using energy. It sounds easy, but it's very complicated, and I was relieved to see that Caterpillar has so many resources dedicated to helping developers like me bring solutions to customers.

I think the world is their oyster at this point, because there's just so much opportunity. These projects take a village to deliver because there's so much technical expertise and specialized equipment needed. What a firm like mine brings to the table is how to integrate and actually build it. So, having the ability to network with other engineering firms, other constructors, and other dealers that have done different projects was invaluable. I probably made five or six key contacts.

JOHN MOYNIHAN, Managing Partner
Cogen Power Technologies, Latham, N.Y.



With all the government and federal money that is being invested in decarbonization projects, we're looking at some opportunities that would be at pilot scale for people to get their arms around using fuels like hydrogen—how to utilize it, generate and store it.

A lot of it is driven by our clients who are looking at alternatives. Everybody's in the same space trying to navigate this energy transition. So we're looking for opportunities to help our customers figure out what this energy transition is going to look like. And being here, it's very interesting to get different perspectives beyond what we're accustomed to doing, and to see how others are approaching various aspects of the energy transition.

JUSTIN SCHNEGELBERGER, Manager, Development Engineering
Burns & McDonnell, Kansas City, Mo.

ESG issues are definitely coming front and center. I think a lot of investor-owned utilities are doing some things right now that are likely to impact reliability. And there's going to be a huge market in the future for reliability-enhancing products, of which Caterpillar is really an industry leader.

Energy storage is obviously going to be an important element. It's going to be pretty market dependent. But as we start encountering more reliability impacts from putting a much higher percentage of renewables on the grid, energy storage is definitely going to be one of the critical elements that enable ride-through of some of those events. I definitely see it being a more critical resource going forward.

GRANT GROTHEN, Principal
Burns & McDonnell, Kansas City, Mo.



I was glad to learn quite a bit more about the offerings that Caterpillar has for Energy as a Service. We run across clients in heavy industry and higher education, where writing their own check for capital assets can be a difficult proposition. And being able to have a project set up where you've got the equipment—it's all put in—becomes basically a lease payment. At that point, it's much easier to accept on their books. And it just makes sense for everyone because you have professionals who know what they're doing, taking care of the energy piece, so they can concentrate on educating students or creating whatever it is that they're manufacturing.

SAMUEL BARNES, Executive V.P. & COO
Commonwealth Associates, Jackson, Mich.

Caterpillar brings not only the technical skills that help us out in a different marketplace than we might normally work in, but they also bring the financial resources to our clients when they need to engineer something that's a little out of the ordinary. So, I think this conference helps us understand where Caterpillar is going with regard to a sustainable future. This conference has been a great resource for us to learn about some of the new technologies that are being developed, as well as Caterpillar's role in managing some of those resources.

GARY SCOTT, Executive V.P. Design and Construction
Robert E. Lamb, Inc., Norristown, Pa.



AT THE FOREFRONT OF THE ENERGY TRANSITION

**RAPID
CHANGES IN
THE ENERGY
ECOSYSTEM
CALL FOR
INNOVATION
& EXPERIENCE**

Complete Distributed Energy Resource (DER) Solutions for Utilities

Successfully navigate the energy transition with a Distributed Energy Resource Management System (DERMS). The technology-based services provide monitoring, management, and monetization.

Develop reliable distributed energy resources, including hybrid systems with renewables and low-carbon fuels, which meet climate-related goals and increase cost savings to pass onto customers.

Prepare for increased electrification with a proven partner with more than 90 years developing solutions responsive to a changing world.

*Scan
to learn
more.*

