A Caterpillar® publication for Power Professionals FALL 2019

RUNREADY™

10 YEARS OF RUNREADY 2010-2019

AHEAD of the CURVE

SELF-GENERATION KEEPS RATES LOW AT RURAL COOPERATIVE

INTELLIGENT POWER

Brazilian firm provides outsourced cogen solution

SMART GROWTH

New C18 genset is the right fit for Canadian grower

CAT®

An Emerging Force

Distributed generation is a term you may be hearing a lot these days. But what exactly is it? Distributed generation refers to a variety of technologies that generate electricity placed at or near the site where it will be used, such as solar panels and combined heat and power systems.

According to the U.S. Environmental Protection Agency, the United States has more than 12 million distributed generation units, which is about one-sixth of the capacity of the nation's existing centralized power plants. Use of distributed generation has increased for a variety of reasons, including:

- Renewable technologies, such as solar panels, have become cost-effective for many homeowners and businesses.
- Several states and local governments are advancing policies to encourage greater deployment of renewable technologies due to their benefits, including energy security, resiliency, and emissions reductions.
- Distributed generation systems, particularly combined heat and power and emergency generators, are used to provide electricity during power outages, including those that occur after severe storms and during high-energy demand days.
- Grid operators may rely on some businesses to operate their onsite emergency generators to maintain reliable electricity service for all customers during hours of peak use.

Three examples of distributed generation are highlighted in this issue of *RunReady*:

✓ Microgrid or hybrid energy systems that store energy and discharge the power when electric rates are high.
✓ An onsite power plant at an office building in Brazil that can peak shave or supply backup power during an outage.
✓ At an Oklahoma rural electric cooperative, a large number of generator sets can be called upon at a moment's notice to supply power to the grid when renewable sources such as wind and solar are waning.

We welcome your feedback, as well as having the opportunity to share your success story.

John Rondy, Editor
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MINING SAVINGS

At a diamond mine in a remote region of north central Quebec, it turns out that a gas power solution can both reduce environmental impact and contribute to the bottom line.

Stornoway Diamond Corporation operates Renard Mine, the first diamond mine in Quebec and one of only six in Canada. It processes up to 2.5 million tons of ore and produces up to 2 million carats of diamonds each year.

Early in the development of the mine, Stornoway concluded that onsite power generation would be a practical solution for its power needs, given that connecting to the grid would have proven too costly and time consuming.

The local Cat® dealer, Toromont Industries Ltd., produced an original power generation station outfitted with seven Cat G3520C gas generators, but powered them by liquified natural gas (LNG) rather than diesel fuel. A feasibility study demonstrated the substantial project benefits in terms of operating costs and environmental emissions compared to the diesel generator set option.

Using LNG reduces annual operating costs by $8-10 million while reducing greenhouse gas emissions by 43 percent (or 23,000 tons) per year.

Patrick Godin, COO and director of Stornoway Diamond Corporation, calls the power generation solution a success not only for the mine, but also for the environment and the people who live in the community. Heat from the generators is captured and used to heat the mine during the winter, when temperatures can reach -30 to -40 Celsius.

"Finding the best technology that's better for the environment and improves the balance sheet—that's a win-win deal," Godin said.

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10 YEARS OF RUNREADY 2010-2019

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BALANCE of POWER

HYBRID ENERGY SYSTEMS PROVIDE GRID-CONNECTED SOLUTIONS THAT REDUCE THE COST OF ENERGY

A hybrid energy system usually consists of two or more energy sources used together to provide increased system efficiency, as well as greater balance in energy supply. Hybrid energy systems are becoming popular as stand-alone power solutions for providing electricity in remote areas due to advances in renewable energy technologies and the rise in prices of petroleum products.

The Cat® Hybrid Energy Solutions technology suite is designed to reduce fuel expenses, lower utility bills, decrease emissions, and reduce the total cost of ownership, while increasing energy resiliency in even the most challenging environments.

In commercial and industrial facilities or others, distributed resources are behind the meter. In these more conventional (non-remote) settings, hybrid systems can have a variety of energy sources including the electric grid, generator sets, renewable energy, and energy storage. Energy storage interacts with both renewable energy and generator sets to make the complete system more effective at delivering energy to the customer.

The battery energy storage system market has expanded significantly in recent years, owing to increasing demand for renewable energy sources. The battery energy storage industry is expected to exceed more than $9 billion by 2024 at a combined annual growth rate of 34 percent, according to Market Research Engine. Some necessary applications of battery energy storage

systems include increased electrification of the grid. This requires more renewable energy resources, and in turn, more demand for battery energy storage capacity.

In a fully operational system, automatic controls are used to dispatch the variety of energy sources according to programmed operating roles. Automatic controls respond to the changes in load demand and changes in energy supply to insure a continuous power supply to customer loads.

Key offerings in the Cat Hybrid Energy Solutions suite include:

- **The Cat Master Microgrid Controller (MMC)**, which keeps loads continuously energized with high-quality power at the lowest cost by managing the flow of power from every source in the system.
- **Cat Connect Remote Asset Monitoring**, which offers real-time collection and remote monitoring of site performance data in Cat Microgrid applications.
- **Cat Bi-Directional Power (BDP) inverters**, which provide real and reactive power with grid-forming and grid-following capabilities.

While there are many different types of energy storage devices, at Caterpillar, the focus is on containerized battery energy storage systems. Factory packaged systems offer rapid deployment and lower field installation, as well as lower startup costs. Package systems also enable the creation of hybrid solutions that can be scaled for specific site needs, and also have the ability to deploy additional capacity over time as system needs grow.

Demand management

The key roles played by energy storage systems in power grids include time-shifting to manage peak loads, providing power quality by aiding in frequency regulation, mitigating power congestion on grids, and supplying power uniformly in distributed generation.

Demand charges are created by measuring the peak of the customer load. Customer kilowatt peak can be measured in a particular month and the highest peak value is multiplied by a demand charge, which is added to the energy charge and included in the customer's monthly bill.

Demand management or peak shaving can alleviate the demand charge. Whether behind or in front of the meter, that's accomplished using automatic controls, measuring periods of high demand and using those controls to dispatch stored energy.

Behind the meter, load peaks are clipped to reduce the demand charge of customers' energy bills. In a project that Cat Hybrid Energy Solutions is reviewing in the southwestern U.S., a customer is planning to peak shave with gas generator sets. They also want to add the capability to operate off-grid because that will give them an opportunity to become an interruptible customer—with some notice the utility can ask this customer to remove themselves from the utility grid. That's one way utilities can shed load in periods of high demand or network congestion. During other times of the year, this allows the customer to use a much lower rate structure for both their energy usage and demand. So, the utility has the ability to shed load, and the payback for the customer comes in the form of reduced energy charges.

Based on a preliminary financial evaluation of this project, this customer can lower its electric costs by 20 to 30 percent, says Barry Payne, a product development engineer for Cat Hybrid Energy Solutions.

"Customers are making equipment buying decisions and they need to see that their capital investment in energy storage and renewable energy is going to create a cash-flow savings," Payne says. "Over time, the accumulated savings have to pay for the equipment purchase."

If the renewable energy generation source is large enough, renewable energy can simultaneously supply the load and charge a storage battery. The stored energy can then be dispatched to meet load demand at other times.

In California, for example, when a peak rate occurs in the middle of the day, it's possible to store energy during times of a low rate and then discharge that energy at times when the rates are high.

"It's a kind of arbitrage and that's particularly useful again with renewable systems in evening hours as the solar energy is declining," Payne says. "Stored energy can be dispatched to meet energy needs in periods of higher demand."

For more information, contact the power systems experts at our dealership, or e-mail cat_power@cat.com

INTELLIGENT POWER

BRAZILIAN FIRM PROVIDES OUTSOURCED COGEN SOLUTION

Founded in 2002, Ecogen is the Brazilian leader in the development and implementation of energy-efficient projects, standing out mainly due to its innovative cogeneration solutions.

With a total electrical generation capacity of about 140 MW, São Paulo-based Ecogen provides onsite power generation to its customers, which include shopping malls, office buildings, hotels and industries. The company has 21 cogeneration plants sited throughout Brazil, with the majority of the installations in São Paulo and Rio de Janeiro.

"We outsource this whole package because we understand customers need to focus on their core business—and it's not producing electricity, chilled water or any other type of utility," says Gustavo Marchezin, commercial director for Ecogen. "With this approach, they can save money in capital expenditures and invest money in their core business and realize greater reliability from their energy sources. We have more expertise and provide better aftermarket support."

The scale of Ecogen's business is large. It has 130 generator sets in its portfolio, including 33 Cat® gas generator sets and 38 Cat diesel generators that produce 84 MW of combined power. In most cases, the power plants are operated remotely from a centralized SCADA system at Ecogen's headquarters at the Rochaverá Corporate Towers complex in São Paulo.

Rochaverá Corporate Towers

The Rochaverá Corporate Towers complex occupies a privileged location on São Paulo's new urban development axis, the Berrini-Chucri Zaidan hub on the south side of the city. The concrete and glass buildings are arranged on the terrain's diagonals to create a central square and three adjoining squares running alongside the public thoroughfares, demarcating semi-public spaces without fences and all open to the city.

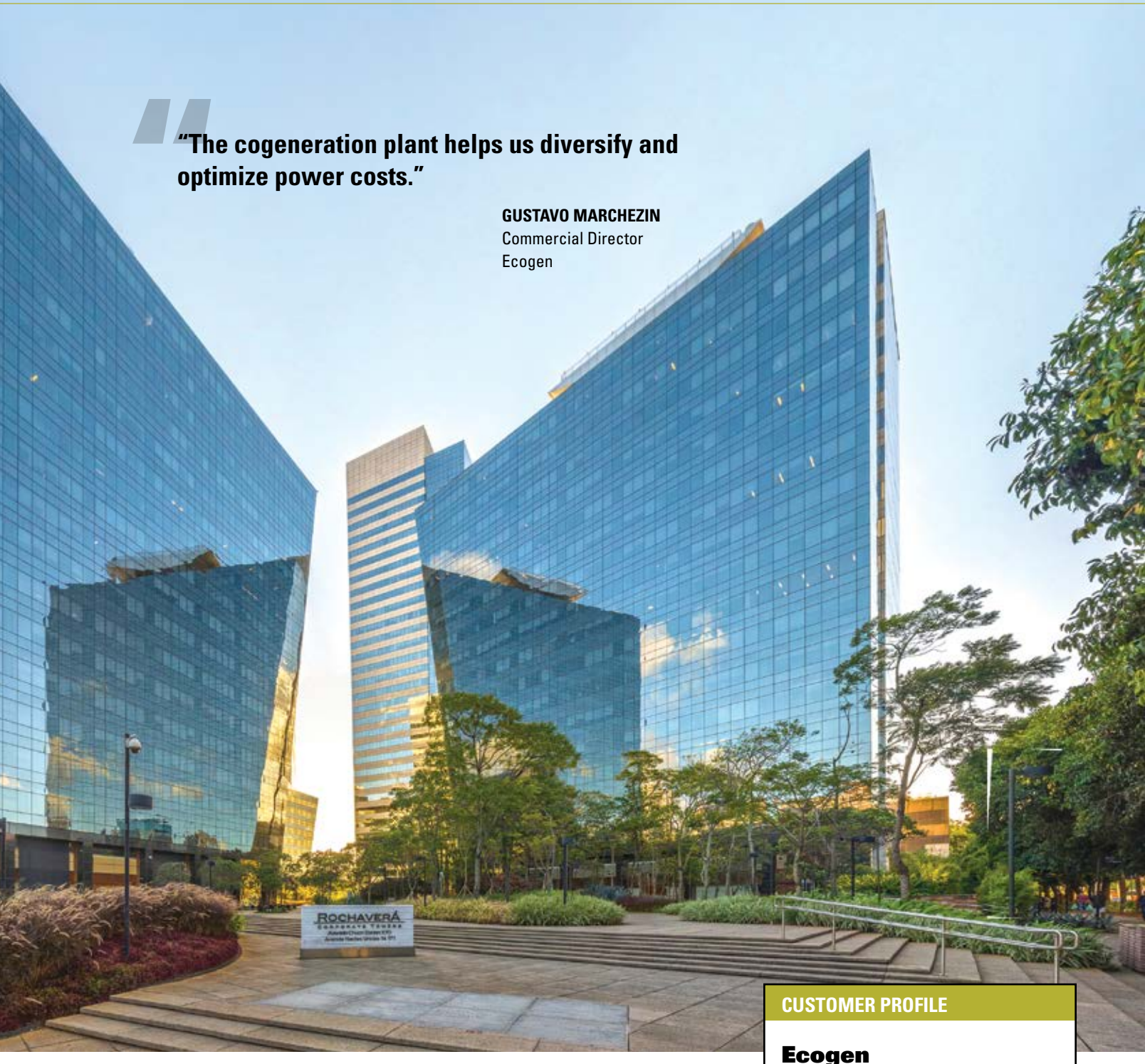
Asymmetry, translucent facades, tailor-made lighting design and sustainable construction set the tone of architectural boldness for the office complex with four towers around a central square and displays challenging non-orthogonal angles. The translucent facades combine precast concrete elements lined with polished granite slabs and an aluminum frame and glass closure.

Rochaverá Corporate Towers was the first building in South America to receive LEED Gold certification by the U.S. Green Building Council.

The 1,345,500-square-foot office complex includes a cogeneration plant owned, operated and maintained by Ecogen that is capable of providing all electricity and air conditioning to the facility, as well as backup power from diesel generators. Four Cat G3520C gas generator sets installed in two phases since 2008 generate electrical energy—up to 8 MW—capable of meeting a constant 100 percent load.

Depending on the price of natural gas, the gensets will run at less than full capacity in tandem with the grid to provide the office condominium with a reliable source and consistent price of energy, Marchezin says.

"Here at Rochaverá we are generating the base load of electricity that is complemented by grid power,"



"The cogeneration plant helps us diversify and optimize power costs."

GUSTAVO MARCHEZIN
Commercial Director
Ecogen

Marchezin says. "The period from 5 p.m. to 8 p.m. is the peak time when power costs the most, so it's during that time we are operating the cogen system. And when the price of natural gas is competitive during off-peak periods, or the thermal demand requires, we will operate the cogeneration system, as well.

"At the end of the day, the cogeneration plant helps us diversify and optimize power costs," Marchezin says. "And it saves tenants from the risk of rolling blackouts while providing a price comparable to the grid."

Continued on page 8

CUSTOMER PROFILE

Ecogen

Location: Rochaverá Corporate Towers, São Paulo, Brazil

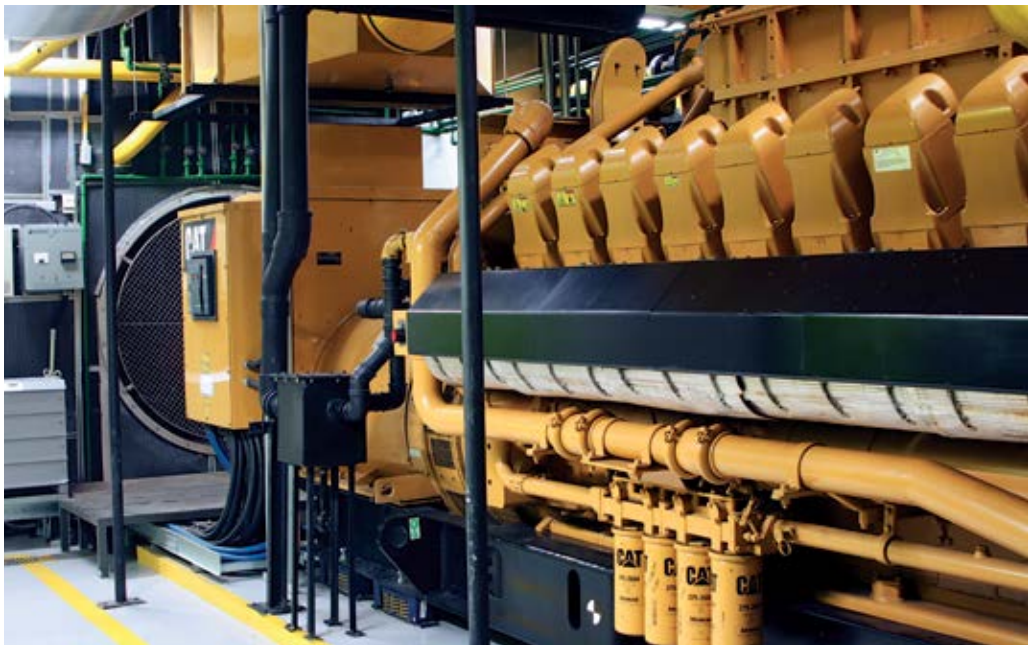
Application: Cogeneration

Cat® Equipment: G3520C gas gensets (4), 3512B diesel gensets (2)

Another advantage is the ability to operate the CHP system in island mode during times of peak demand when grid power can become unreliable. So far this year, the Rochaverá power plant has operated in island mode for 67 hours.

"During hot periods when everyone is running air conditioners, the distribution line tends to be a little unstable," Marchezin says. "Distributed generation power plants can help with this. When we anticipate this is going to happen, we run on island mode, and the building doesn't feel anything.

"And during that time, we were out of power for just six minutes," Marchezin adds. "So for 67 hours we saved the condominium from having blackouts."



Waste heat utilization

A key component of Ecogen's cogeneration strategy is utilizing waste heat from the jacket water and exhaust gas to create hot water that is the input for the absorption chillers, which provide chilled water for air conditioning. This results in higher efficiency and avoids additional cost from the grid.

At Rochaverá Corporate Towers, jacket water and exhaust heat recovered from the gensets produce 2,425 tons of chilled water through absorption chillers, resulting in the avoidance of 1.5 MW from the grid. This is complemented by another 2,535 tons generated by electrical chillers. The use of waste heat to create chilled water for air conditioning is replicated at most of Ecogen's cogeneration installations.

"The need we have in the offices is just for air conditioning," Marchezin says. "We recover heat from the engine block, and instead of using a radiator to cool, we use a heat exchanger that collects the jacket water heat. After this stage, the water also passes through another heat exchanger that transfers heat through exhaust gas. The water temperature is around 194-198° F and this water is sent to the chillers."

Since 2010, Ecogen has achieved an average of 95 percent availability at its cogeneration facilities during peak hours.

"When we started, we focused a lot on Caterpillar and (Cat dealer) Sotreq—our strategy was to have a mini portfolio of the same engines and the same supplier so we could learn about it," Marchezin says. "Most of our generator fleet is comprised of Cat power, and Sotreq has two technicians dedicated to Ecogen.

"We are supported very well by them, and the availability of parts from their inventory is very good," Marchezin continues. "We can handle some maintenance by ourselves, but we rely heavily on them. I follow everything that happens at our power plants, and at the end of the day, they are the best-prepared dealer compared to dealers who represent other equipment manufacturers."

ABOUT ECOGEN

Founded in 2002 under the Iqara Energy Services brand and controlled by BG Group, the company now known as Ecogen quickly became synonymous with quality in the field of energy-integrated solutions focused on distributed power projects. Years later, in 2008, the company was acquired by a national group of investors and renamed Ecogen Brasil.

Due to its differentiated culture that encourages intelligent and economically attractive energy solutions, it did not take long to attract the attention of global companies. In 2012 it was acquired by the Japanese companies Mitsui & Co. and Energy Advance Co.

Embracing a philosophy that unites the expertise of its professionals with a massive investment in technology, Ecogen is now the Brazilian leader in development and implementation of distributed energy efficiency projects.

BUILT FOR ANOTHER LIFE

CAT® REMAN FOR ELECTRIC POWER

Genuine Cat® parts restored by a rigorous remanufacturing process—meet Cat Reman products. Each one looks, performs and lasts like our new parts, but is sold at a fraction of the cost. And all are backed by our standard one-year parts warranty.

Select from Reman parts, Long Blocks, Short Blocks, engines and generator ends.

Cat Reman Extended Life Salvage Technology

Remanufacturing is more than rebuilding. It's returning engines and components to their original performance specifications through the use of state-of-the-art salvage techniques, strict reuse guidelines, advanced manufacturing systems and unequaled quality control. Restoring original performance is possible with Cat Reman Extended Life Salvage Technology.

Discover the benefits of investing in Reman

Proprietary Process: Products (cores) are returned to us from the field and are disassembled, losing their original identity. Each part then goes through a cleaning process and strict inspection to determine if it can be effectively salvaged. Those accepted are remanufactured using proprietary techniques and are updated to include the latest advancements.

High Standards: Many can claim to have quality remanufactured products, but we ensure every one we sell meets or exceeds Cat new parts standards. We measure, weigh and meticulously inspect each one.

Cost Savings: They're good-as-new Cat products sold at a fraction of the new part cost. But how? Because we remanufacture the high-quality materials we require for our parts, we eliminate substantial costs—it's savings we're passing on to you.

Core Returns: Return your old product (core) to our dealership and we'll give you core credit based on our core acceptance standards. Your core credit goes toward the purchase of your next Reman part. Remember to follow our tips to ensure you receive your full core credit.

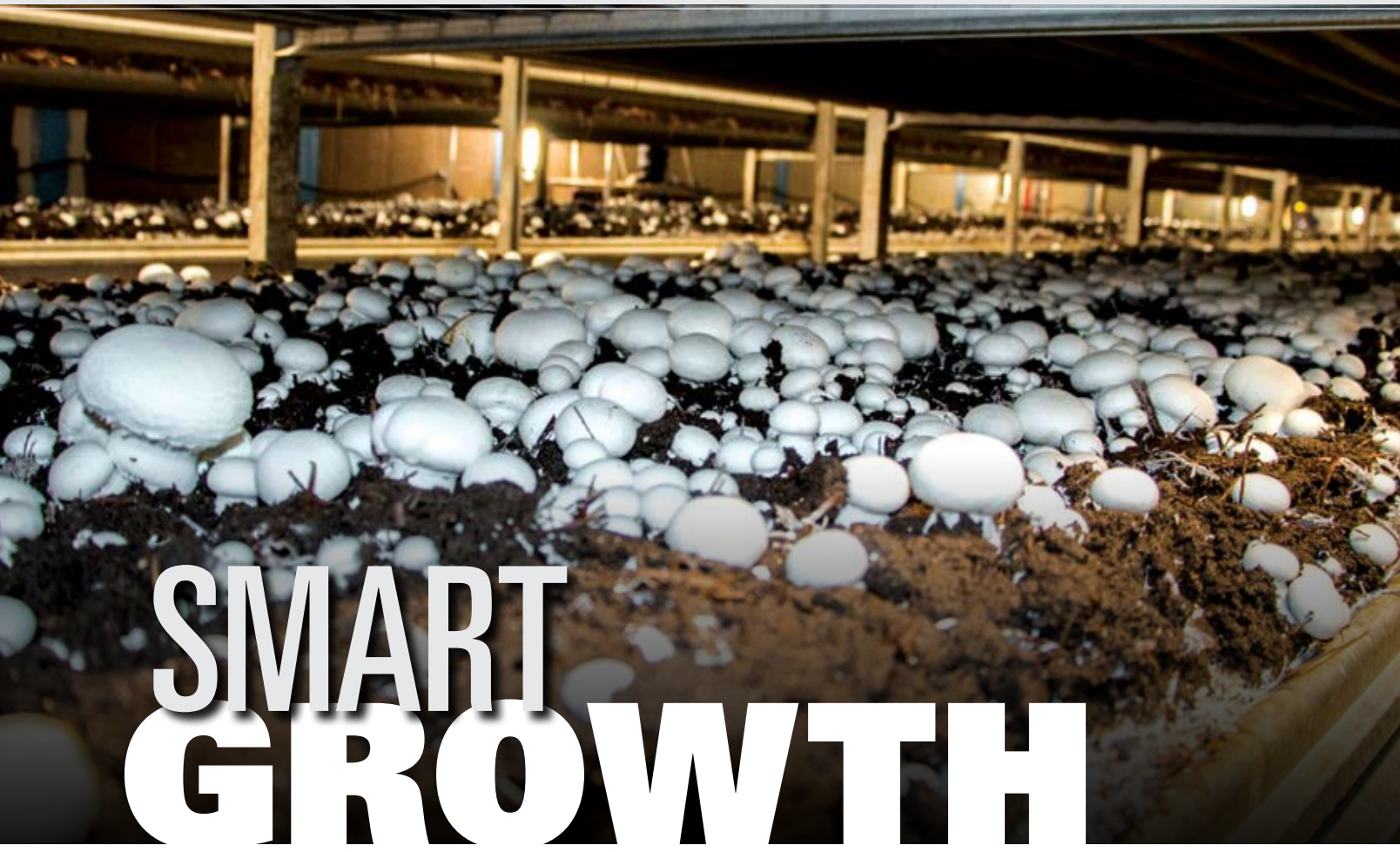
Genuine Parts: We only remanufacture genuine Cat parts in acceptable condition because we don't want to sacrifice quality for cost savings—and we know, neither do you.

Warranty: Our new parts come with a one-year warranty—and so do our Reman parts.

Greater Sustainability: We're reducing, reusing, recycling and reclaiming materials that once went into a landfill. And we use significantly fewer resources remanufacturing a part than we would building a new one.

Ongoing Support: Our dealer network spans 1,600 locations across the globe so there's always one near you. They're your source for Reman products and power system maintenance.

Parts Purchases: Visit our dealership to order Reman parts or shop online at Parts.Cat.com



SMART GROWTH

NEW C18 GENSET IS THE RIGHT FIT FOR CANADIAN GROWER

As a growing operation that produces 130,000 pounds of mushrooms per week, Highline Mushrooms can't afford to lose power that supports a highly sensitive growing process at its farm in Crossfield, Alberta.

At the farm north of Calgary, 16 growing rooms require very specific temperatures and humidity levels at various stages of the growing process, says interim farm manager Mark O'Brien.

"Without power, we can't control the temperatures, which are essential to the growing process," O'Brien says. "It's a very specific type of environment—a very exact science—and controlling the temperatures in the growing rooms is critical. It could really damage our quality if there is no cooling."

Until recently, backup power to the farm was supplied by a used 670 kW Cat® diesel generator set dating back to 1976 that the grower had acquired secondhand. When the unit finally gave out in February, Highline procured a rental generator set on a temporary basis from its Cat dealer, Finning Canada.

"We got a call from Highline Mushrooms saying that they needed to replace their original backup generator, and we were able to immediately send them a rental unit," said Bryce Burgeson, the Finning electric power sales representative who took the call. "And we also had the replacement genset they needed in our inventory."

Originally, Highline just wanted a replacement model of the same Cat genset, but because it had been 43 years, the new model of that genset would not fit in the existing enclosure—a shipping container.

"Fortunately, we had something in stock even better suited to Highline's needs," Burgeson said. "We had just received the new high-density Cat C18 genset."

CUSTOMER PROFILE

Highline Mushrooms

Location: Crossfield, Alberta, Canada

Application: Standby power

Cat® Equipment: C18 diesel generator set

Highline MUSHROOMS

The output rating on the new C18 generator has been increased from 600 to 750 kilowatts of standby power. Previously, a larger unit such as a C27, 27-litre, V-12 genset would be needed to deliver this much power. This high power output can now be attained with the Cat C18's six-cylinder, 18-litre engine.

This new, high-density C18 genset is the first to be sold in Canada, and gives Finning a significant advantage over other brands in the same power range.

"Compared to other brands with a similar power output, the C18 is efficient without impacting power capacity, and it has a smaller footprint, increased fuel efficiency and, most importantly, lower upfront capital costs, which is a huge benefit to the customer," Burgeson says.

Power need

With 10 farms throughout Canada, Highline is the largest organic mushroom grower in Canada, producing more than two million pounds of mushrooms per week. The Crossfield mushroom farm has two large boilers and a chiller, which the C18 generator backs up along with the rest of the farm's electrical load.

"If the power goes down, without a generator, we can't do anything productive here on the farm," O'Brien says. "We can't harvest, we can't control the environment in our growing rooms, and we can't pack and prepare our product."

Highline Mushrooms experiences two or three power outages annually, which can last four to six hours or more.

"After we commissioned our new unit in April, there was a bad snowstorm several days later and grid power was down for a day and a half," O'Brien said. "For us, the timing was good. We ran the new unit and everything came off without a hitch. Without that power, we wouldn't have been able to control the temperature in our growing areas. Our new Cat C18 passed the first test with flying colors."

Highline required a replacement generator set in short order, and Finning had the new C18 that fit inside the existing container. Finning technicians were helpful in identifying and assisting with the necessary modifications to the container in order to house the new C18 genset.

"We didn't have to wait 16 weeks to get it," O'Brien said. "There were adaptations that we had to make to the container, and we didn't realize this until the Finning guys showed up. So that delayed us for a few weeks. Once the technician came out, we got to work and started making those changes. The technician was very good, and worked very well with our master electrician to complete the necessary modifications."

The Crossfield mushroom farm is planning to add an additional 16 growing rooms. O'Brien says plans call for the addition of another Cat genset to back up the new area, as well as the entire farm if the other generator set is not available. The new generator will include an automatic transfer switch and a factory enclosure.

"The Cat generator is a safety net for us," O'Brien says. "It's something we can't be without."

"The Cat generator is a safety net for us... It's something we can't be without."

MARK O'BRIEN
Interim Farm Manager
Highline Mushrooms

AHEAD of the CURVE

RURAL COOPERATIVE GENERATES SAVINGS FOR ITS MEMBERS

As late as the mid-1930s, nine out of 10 rural homes were without electric service. Farmers milked cows by hand in the dim light of a kerosene lantern, while their wives slaved over a wood range and a washboard.

The lack of electricity in rural areas kept their economies entirely dependent on agriculture. Meanwhile, factories and businesses preferred to locate in cities where electric power was easily acquired. For many years, power companies ignored the rural farming communities of the nation.

The first official action of the federal government pointing the way to the present rural electrification program came with the passage of the Tennessee Valley Authority (TVA) Act in 1933. This act authorized the TVA Board to construct transmission lines to serve "farms and small villages that are not otherwise supplied with electricity at reasonable rates."

It was during this time that People's Electric Cooperative (PEC) was established in 1937 to provide power to the homes, farms and businesses located in south central Oklahoma.

With headquarters in Ada—about 80 miles southeast of Oklahoma City—PEC today provides power to more than 15,000 members at 21,000 locations in 11 counties.

People's is a member of the Southwest Power Pool (SPP), which provides reliable power, adequate transmission infrastructure, and competitive wholesale electricity prices for its members. People's is subject to electrical rates charged by SPP, which can fluctuate greatly depending on the available supply and demand of electric power on the system.

As a rural distribution electric cooperative, PEC has several power purchase agreements (PPAs) with other energy providers. The power comes from traditional generation sources, but also includes natural gas and renewables such as wind and solar power. Several years ago, some of the utility's PPA contracts were coming to an end.

"We needed to replace 75 megawatts, so we contracted with an independent engineering firm to determine our best option," says Kevin Wood, executive vice president and CEO for People's Electric. "The study showed that it was best for us to add natural-gas generation as part of our own system."

75 MW of Cat® power

Working with local Cat dealer Warren Power Systems and general contractor Lippert Brothers, People's opted to install 30 Cat G3520H gas generator sets that produce 75 MW of power, in total.

"We are always striving to keep our rates low, and this was something that

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CUSTOMER PROFILE

People's Electric Cooperative

Location: Ada, Okla.

Application: Peak shaving, demand management

Cat® Equipment: G3520H gas gensets (30), 13.2 kV paralleling switchgear

we set out to do many years ago when we joined the SPP and started to buy power from the market," says Russ Brown, a senior generation engineer for PEC. "It gives us a lot of flexibility in the fact that we can control what we do with our own generation. We're credited for any time we run as well as for the generating capacity that we have sitting here."

In July 2017, People's Electric began generating its own power at the two main generator sites. The entire project was completed and fully commissioned in January 2018.

The gensets are split among five contiguous locations: Centrahoma West and Centrahoma East, which each have 10 generators. Nearby, Little Dixie contains five generators, Stewart has two, and Buzzard Flop has three generators.

Now that it has the ability to generate power on its own, People's is able provide more affordable power to its ratepayers.

"We can provide the lowest rates possible to our members because we have the flexibility of using these units or not," Brown says. "We get a low market price because we know that the generators are efficient, and they run at a price that we find acceptable."

"We get a low market price because we know that the generators are efficient, and they run at a price that we find acceptable."

RUSS BROWN
Senior Generation Engineer
People's Electric Cooperative

PEC monitors the price of power from the grid and decides when to run the generators.

"As a participant in the Southwest Power Pool, we're watching those grid prices all the time," Wood says. "We're always looking for the best low-cost power and also trying to provide the best service. So every day, even down to the hour and in real time, we're watching that market and just trying to see what the best mix of our portfolio is, and then we're making adjustments accordingly. Anytime that we can generate power cheaper than we can buy it out of market, that's when we're going to run the generators.

"These reciprocating units fit really well with renewables such as wind," Wood adds. "The SPP market likes to use those to supplement wind power, and they can ramp up quickly, so I think that's one of the main advantages of these gensets."

When it receives a call to run from the Southwest Power Pool, PEC's Cat® generator sets can be fully loaded and online within 10 minutes of receiving the call, Brown says.

With the high efficiency and the size that matched PEC's requirements, the Cat G3520H gas generator sets were an easy choice compared to any other reciprocating units they looked at, Brown says.

"The G3520H has a lot of advantages; not only is it a very fast-loading unit, but it's also pretty hardy. We see some very high temperatures throughout the

G3520H Gas Generator Set


Ten gensets are housed in enclosures at Centrahoma East

summer when we're running—we may have ambient temperatures well into the 100s—and we don't have to de-rate due to temperature. So that's a big plus."

Since the entire fleet began operating last year, the gensets are running considerably more than was originally forecast, Wood says.

"The engineering study estimated the generators would run about 2,000 hours a year, and we're on pace to run those a lot more than what the study projected," Wood says.

"We've noticed since we went into the market late last year with our two main sites that even on days where wind power is really prevalent and the cost of grid power is generally low, the efficiency of these Cat units determined that we're expected to run more often than not," Brown adds.

PEC has two sites with a total of 20 generators that are registered in the market with the Southwestern Power Pool. The SPP analyzes the expected load on the system for the day ahead and decides what generators PEC will run.

"SPP will actually send us an e-mail signifying exactly when our run times will be for the next day and we just follow their lead," Brown says. "They tell us exactly what times we will run, and when we'll shut down. And then there are also times of market congestion when they'll do what they call an RUC, which is a real-time unit commitment, and essentially that's when we have to have that quick ramp-up capability."

Dedicated dealer support

People's Electric has counted on Warren Power Systems from the inception of the project right up to the present.

"Steve Parsons at Warren Cat was very helpful and quick to work with us to develop a proposal that we could implement to develop this project," Brown says.

"From the beginning, Warren Cat was an integral part of the process due to the fact that they were here for our weekly planning meetings," Brown continues. "They helped us create the proposal that we sent out to a couple different general contractors that were proposing to complete the work. And they helped us on any issues that we had during the construction process and afterwards, as well."

Several technicians from Warren Cat are always available to help maintain the gensets and keep them in peak operating condition.

"When you set down this many generators, you can expect to have a few hiccups here and there, and they've been quick to jump on them, fix them, and then go on to the next thing," Brown says. "They're right there when we need 'em—they're just a call away."

Compared to the transmission and distribution model seen at most rural electric cooperatives, PEC's move to generate a significant share of its own power places it ahead of the curve.

"In our market niche, generally, you're either a distribution, generation or transmission cooperative," Brown says. "With the addition of our Cat gensets, now we're a generation, transmission and distribution cooperative. That's a little bit different than most as far as the way we go about doing business, and we're glad we did it. And I'm sure our members don't mind the fact that we are keeping their rates steady either."

People's has received inquiries from other rural cooperatives that are interested in developing their own source of power generation.

"I've actually received several calls and had quite a bit of interest in what we did, and how we accomplished it," Wood says. "And once they hear about it and how it's working for us, they say, 'That seems like the right way to go,' and I agree."

MORE VALUE, LESS STRESS

Extend the life of your product with hassle-free maintenance, easy access to asset information, expert advice on equipment and operation, component protection, and single monthly payments.

Contact your local Cat® dealer to sign up for a Customer Value Agreement, or visit us at **www.cat.com/cva** to sign up for FREE Cat Connect Remote Asset Monitoring (limited time offer).

CAT®
LET'S DO THE WORK.™