

RUN READY™

SHAVING THE PEAKS

HOW INNOVATIVE UTILITY
MANAGES POWER COSTS

NEXT GEN POWER

Legacy power plant modernizes
with Cat® C175s

PEAK POWER

Mountaintop attraction backed
by Cat C27

Cleveland
Brothers



Tried and True

Even as the energy transition dominates the headlines, with companies declaring carbon neutral goals as new technologies and clean fuels emerge, tried-and-true modes of distributed generation are still counted on by businesses and industries to support their operations. And these power generation resources are not going away anytime soon.

In northwest Kansas, a small municipal utility relies on standby power from two Cat® C175 diesel generator sets to back up the city's power supply when grid power is lost—or when the cost of power skyrockets as it did during a devastating winter storm two years ago.

Having the ability to produce its own energy during Winter Storm Uri saved Colby, Kan. about \$1.7 million, notes the city administrator.

About 250 miles west of Colby, at 14,115 feet above sea level, The Pikes Peak Summit Visitor Center is the highest-altitude visitor center in the world.

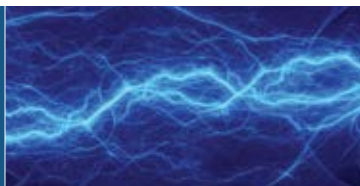
Since opening in June 2021, a Cat C27 generator set at Pikes Peak has operated for extended periods on two occasions when weather events cut off power to the summit.

Meanwhile, on the east side of the Wasatch Mountain range, a municipal utility relies on a fleet of Cat generator sets fueled by natural gas for peak shaving and holding down the cost of power to its customers.

As a forward-looking utility, Heber Light & Power is also utilizing new battery storage technology from Caterpillar to store and later release power from renewable sources of energy to gain greater efficiencies, thereby reducing the cost of power.

We hope you enjoy the issue, and wish you a happy holiday season.

DID YOU KNOW?



Electricity is something that we rely on day in, day out, without really thinking about it. From switching on a light to powering your cooker, almost everything that we use in day-to-day life requires some form of electricity. Here are some interesting facts about this amazing form of energy:

- Electricity travels at the speed of light (670,616,629 mph, or 186,000 miles per second).
- Dating back to 600BC, electricity was first discovered by the Ancient Greeks.
- Electric cars actually date back as far as 1832.
- The first central power plant in the U.S. was Pearl Station, in Manhattan. The plant was built in 1882 and served 85 customers.
- Iceland is the country that uses the most electricity annually. Its consumption is about 23% more than the U.S.
- Electric eels can produce shocks up to 600 volts.
- An electric shock is caused by the water in your body.
- Electricity plays a key role in your heartbeat.
- LED lightbulbs use 80% less electricity than incandescent.



Leading by **EXAMPLE**

In 2018, Indiana's longtime Cat dealer, MacAllister Machinery Co., moved into a new headquarters facility on the southeast side of Indianapolis.

With 360,000 square feet under roof and situated on a 132-acre site just west of I-465 at the I-74 Southeastern Ave. exit, the design of the new facility harkens back to the American Arts and Crafts style combined with elements of Mission Style from the early 20th century.

The new facility introduces a new concept at MacAllister Machinery—locating its parts, light and heavy equipment rentals, power systems and retail operations in a 12,490 sq. ft. retail center—making it the only Cat dealer in the world with this type of setup.



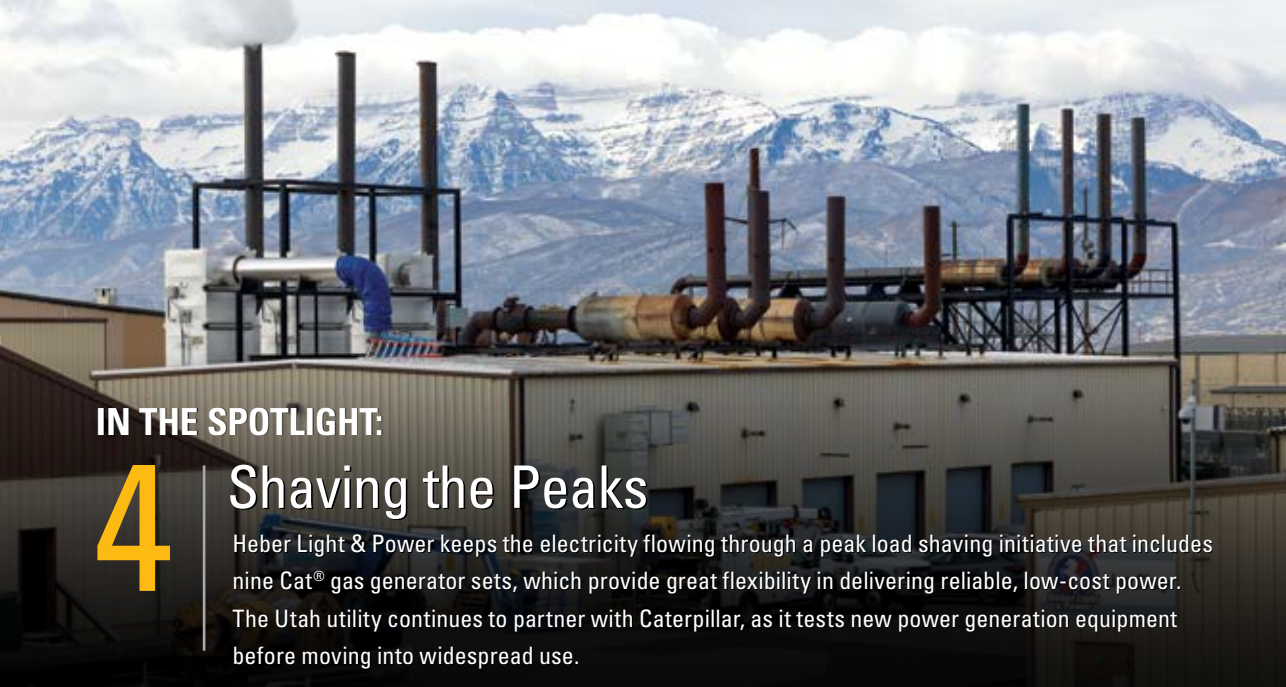
“We can show customers how it saves us money, and could do the same thing for them.”

—Chris MacAllister

Historically, power rates in Indiana have always been among the cheapest in the country, which helped support a large industrial manufacturing base. However, due to changes in demands in the power generation sector, delayed construction of new transmission lines and deferred maintenance on existing lines, the state now ranks 26th in the cost of electricity—compared to its former rank as the fifth cheapest, according to the U.S. Energy Information Administration.

As part of its new headquarters, MacAllister opted to produce its own on-site power with the installation of a Cat CG132B-12 generator set that is fueled by natural gas and runs continuously, providing up to 600 kW of electric power and one million BTUs of thermal energy to the facility. The heat provides supplemental space heating for the office and retail areas. Including heat recovery, MacAllister's cogeneration system operates at up to 70 percent total efficiency.

“We can show customers how it saves money, and could do the same thing for them,” says company principal Chris MacAllister. “It's nice to practice what you preach and have an installation that customers can come and see and consider for their operations.”



IN THE SPOTLIGHT:

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Heber Light & Power keeps the electricity flowing through a peak load shaving initiative that includes nine Cat® gas generator sets, which provide great flexibility in delivering reliable, low-cost power. The Utah utility continues to partner with Caterpillar, as it tests new power generation equipment before moving into widespread use.

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SHAVING THE PEAKS

HOW INNOVATIVE UTILITY MANAGES POWER COSTS

Located 45 minutes from downtown Salt Lake City at an elevation of 5,600 feet, Heber Light & Power (HL&P) is a community owned municipal utility providing service to about 15,000 customers in Utah's Heber Valley.

Formed in 1901 by the communities of Heber City, Midway City and Charleston Town, the utility operates a transmission and distribution system that spans 100 square miles in Wasatch County.

HL&P's power portfolio includes a diverse mix of wind, solar, geothermal,

hydro, natural gas and coal. The company owns 18 MW of generating capacity, including three hydro plants and three natural gas-fueled power plants that can produce up to 15 MW of electricity.

As a forward-looking utility, HL&P has owned distributed generation assets since 1984. In 2002, HL&P became one of the first public utilities in the world to install Caterpillar's line of advanced gas-fueled engine generator sets. The utility continues to partner with Caterpillar, as it tests new power generation equipment before it moves into widespread use.

Low-cost power

Today, Heber Light & Power keeps the electricity flowing through a peak load shaving initiative that includes nine Cat® gas generator sets. The advanced units,



designed to carry the top 25 percent of the daily load demand, provide great flexibility in delivering reliable, low-cost power.

In-house generation minimizes exposure to market-price spikes, assuring HL&P of a reliable peak-time power supply at a predictable price.

The Cat gensets run for short periods during the hottest and coldest days of the year—which are normally the times of peak grid demand. HL&P’s winter demand currently peaks at 47 MW, and summer demand peaks at 52 MW; while average daily demand ranges from 18 to 20 MW.

Annual operating time for the gensets ranges from 1,500 to 5,000 hours per year, depending on the market price. With pre-purchased gas contracts and known gas cost, as well as planned maintenance costs, Heber knows their strike price and will bring on generation when the market price exceeds its generator strike price. This enables HL&P to find savings when the market price is higher than the cost of to run its own generation assets.

“Most of our scheduling is usually in the eight- to 12-hour per day range to run the units,” says HL&P general manager Jason Norlen. “These Cat units just come up as they’re needed to support additional load. So when there’s a load jump of two megawatts on our system, we generally

have a unit scheduled to fill that void.”

The Cat gensets are increasingly called upon to backfill when renewable energy wanes, such as when the sun isn’t shining, or the wind isn’t blowing.

“Ten years ago, we didn’t have this higher level of renewable energy in our portfolio,” Norlen observes. “So we’re doing more than just shaving peak loads. We’re reacting to whether or not we’re utilizing energy from these renewables.”

G3516: Fast-start capability

As the cost of power rises, HL&P seeks innovative ways to stabilize the cost of energy for its customers.

“Power markets are definitely more volatile here in the West, and the cost of capital is a lot higher now,” Norlen says. “And COVID didn’t do us any favors. Our loads increased dramatically during COVID because people stayed at home to work, and we’re a bedroom community.

“But just having the ability to control our own destiny by peak shaving, and filling in behind the renewables is



definitely something that gives us the ability to keep rates lower than they otherwise would be.”

About 15 months ago, HL&P began field testing a Cat G3516 fast-response natural gas generator set, which has since become an integral part of the utility’s power generation fleet. HL&P is working with a local joint action agency to potentially implement a plan for using the G3516 as well as several other Cat gensets in a fast-start pool that can come online quickly and supply power to the grid when its needed.

“They can go from sitting idle to full load in five minutes, and that’s something

Continued on page 6

CUSTOMER PROFILE

Heber Light & Power



Location:
Heber City, Utah

Application: Peak Shaving

Cat® Equipment: Fast response gas gensets: G3516, G3520

Gas gensets: G3516C (2) G3516H, G3520C (3), G3520H

Battery storage: Energy Time Shift (ETS) and Energy Capacity Expansion (ECE) modules, 4160V Switchgear



that’s needed with all the renewables that are coming online,” Norlen says. “If you want to be a player in the capacity markets—the spinning and non-spinning reserve markets—there’s value in having that fast-start capability.”

New energy storage units

Heber Light & Power and Cat dealer Wheeler Power Systems held a ribbon cutting in October for a battery storage facility that will be used to support the operation of HP&L’s Lake Creek Hydro power plant and the corresponding distribution circuit.

The Cat Energy Time Shift (ETS) module is a scalable, rapidly deployable energy storage system using lithium ion batteries and the Cat BDP1000 inverter. The Battery Energy Storage System (BESS) is made of an ETS module that houses the inverter, and a Cat Energy Capacity Expansion (ECE) module that adds energy capacity expansion with additional battery strings. Altogether, the battery storage system can be scaled up to 9,000 kWh.

The lithium ion battery is one of the first installations of its kind to be used by a public power utility in the state of Utah. At the end of testing, Heber Light

“Energy storage technology is brand new to us. But seeing what these batteries can do compared to a bank of voltage regulators, or a capacitor bank—they can do a lot more than some of the technology we’ve been using forever.”

JASON NORLEN, Heber Light & Power General Manager
Heber City, Utah



& Power has the option to purchase the battery units.

“This project has been at least five years in the making,” Norlen said. “We had a battery study done on that distribution circuit by an engineering firm, and the study was huge to get buy-in from my team and the HL&P board of directors. It’s never easy being the tip of the spear, and it’s taken some patience because this battery technology is new. But my sales rep Shane Minor and the team at Wheeler Power Systems have provided excellent support throughout this process.”

HP&L has operated the battery storage system since mid-November, typically

recharging it from its hydro energy resources, and then discharging the battery during times of peak demand. When Lake Creek Hydro goes offline, the energy stored in the battery helps regulate voltage.

“This enables us to shift the peak on this circuit and bolster the circuit’s strength,” Norlen said. “We just pick the right times during low-load demand to charge back up, and then we release the energy to the distribution circuit again during the next day’s peak demand period.”

Cat® ETS module

The ETS energy storage system integrates with the utility, generator sets

ETS and ECE battery modules



and renewable sources to store energy for use at a later time. The system may also provide temporary backup power in the event of a power outage.

Factory prepackaged and tested, the pre-engineered containers are shipped as a single unit with batteries, inverter, isolation transformer and other equipment installed.

The ETS module is designed to work with an array of renewable systems, including solar and wind. Integration with the Cat Microgrid Master Controller (MMC) enables time-shifting of renewable energy, and full asset control allows smoothing of intermittent renewables.

The grid forming Cat Bi-Directional Power (BDP) inverter enables generator sets to be switched off, further reducing fuel consumption and operating costs.

When used with a generator set, the Energy Storage System provides reserve power capacity to:

- Decrease the transient voltage and frequency dips resulting from the application of large loads.
- Enable highly-efficient, lean-burn gas gensets to operate in island mode.
- Shutdown one or more gensets for fuel savings.

“We have power purchase agreements with large solar producers in the west desert, and energy storage is just a nice fit with those renewable projects,” Norlen says. “By having the battery, it extends our capacity by a few more hours when the solar day ends. Natural gas generators can work in similar fashion, providing power that can be stored by the battery units.

“Energy storage technology is brand new to us,” he adds. “But seeing what these batteries can do compared to a bank of voltage regulators, or a capacitor bank—they can do a lot more than some of the technology we’ve been using forever.”

Trusted relationship

During his 27 years at Heber Light & Power, Norlen has established a solid partnership with Wheeler Power Systems that’s built on trust.

“We’ve always worked with Wheeler; it’s not even like a customer-vendor relationship—we work together to solve problems,” he says. “They’re very familiar with the challenges we face. It’s way more than just buying generators. It’s literally like ‘let’s sit down and resolve this problem.’ They have so many resources to help a utility like HL&P to solve those problems.



“And their service department is just huge for us; they’re definitely our warehouse for parts inventory,” Norlen adds. “And if I need one of my technicians just for power plant operations, a Wheeler technician will provide the scheduled maintenance or do anything else we need that requires attention. We work with Wheeler side-by-side—it’s a great relationship.”



Heber Valley



ENERGY CONTROL SYSTEM

INTEGRATED CONTROLLERS MANAGE YOUR ENERGY NEEDS

Evolving energy demands, regulations, and technologies can be complicated. Your energy controls shouldn't be.

The Cat[®] Energy Control System (ECS), is a new suite of integrated, connected and scalable controllers that enables customers to manage energy needs, ranging from a single generator set to cohesive, full-site microgrid solutions linking multiple assets.

Designed and tested by Caterpillar global experts, the new Cat ECS portfolio addresses current and future regulatory and grid requirements. The controllers utilize a simple, scalable architecture, enabling customers to layer additional functionality and serviceability with their changing energy needs. Additionally, the ECS provides built-in, plug-and-play features that facilitate installation, commissioning and management of multiple power generation assets.

As the energy landscape evolves, power systems are becoming increasingly complex, utilizing multiple energy sources and grid interfaces. The Cat ECS provides the integration, scalability and connected features that maximize power system performance, while also simplifying specification, installation and operation.

Four models with increasing capabilities are available. The range includes the **Cat ECS 100**, a powerful, value-added standby control system available on new standby, gas fast-response and prime power generator sets in select regions of North America. It provides numerous features including:

- Intuitive, smart-screen navigation that can be tailored to customer needs
- Enhanced programmable logic controller (PLC) functionality
- Four remote HMIs
- Auto-mains failure
- Integrated annunciator functionality

The **Cat ECS 200** adds generator set paralleling capability, along with product updates for advanced features, such as combined heat and power (CHP) system management, Balance of Plant control and grid upgrades.

The **Cat ECS 300** provides utility and distribution breaker control and can be customized for virtually any application, including tie breakers. The **Cat ECS 400** layers on supervisory control of full microgrid assets.



For customers in North America, the Cat ECS range also offers streamlined integration of power assets with the Cat[®] Active Management Platform (AMP), a proven distributed energy resources management system (DERMS) that monitors, manages and monetizes on-site energy assets, including natural gas and renewable power generation, storage and microgrids.

Following the launch of the Cat ECS 100 in October, the portfolio of controllers will be rolled out globally throughout 2024, along with retrofit kit options for the Cat ECS 100 during early summer for select installed units in the field. [R3](#)

To learn more about the new Cat[®] Energy Control System, contact the power systems experts at our dealership.



THE NEW CAT[®] ECS PORTFOLIO ADDRESSES CURRENT AND FUTURE REGULATORY AND GRID REQUIREMENTS.

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CAT[®] QUALITY CAT PERFORMANCE EXCEPTIONAL VALUE.

By designing the new **Cat GC** models specifically for stationary standby applications, it allowed us to really focus on incorporating only the key options required for your business, making the quality and reliability of Cat power more affordable than ever.



To find out more visit
cat.com/epcatgc



RIGHT-SIZE YOUR GENERATOR SET

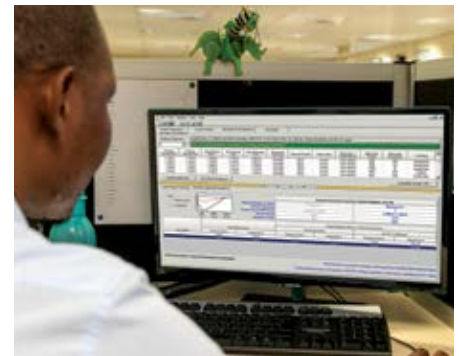
Considering factors such as site conditions, load characteristics and required performance, **Cat® Electric Power SpecSizer** provides accurate and timely technical data, robust load models and optimized algorithms to assist in specifying a properly sized generator set to best meet your power needs.

Reducing your sized genset lowers capital costs and can also lower installation costs, structural costs (including space and foundation), shipping costs and operational costs, as well as genset maintenance costs. For example, an oversized genset operated at lightly loaded capacity can be prone to wetstacking.

SpecSizer doesn't force an optimized genset selection, but calculates it along with a genset selection based upon your user-defined loads and load step sequencing.

Several new features set SpecSizer apart as a revolutionary tool in generator set sizing, including its ability to evaluate load types such as air conditioners, elevators, ultraviolet lights, single-phase NEMA and single-phase IEC motors. New loads have been added to SpecSizer, including fire pumps and transformers, and we're also preparing to release chiller loads. By expanding the load types that can be selected in SpecSizer, we are better able to assist you in identifying the generator set that best meets your needs.

SpecSizer offers a unique Application Wizard that collects data on the user's loads, then organizes the loads into



steps, considering voltage dip and load demands, to assist in selecting the best generator set size in terms of both rating and footprint.

» To learn more about many optimization opportunities possible when sizing generator sets with SpecSizer, we invite you to join our next webinar training session. For further information about SpecSizer training, email specsizersupport@cat.com.



CAT® XGC1900 NATURAL GAS POWER MODULE

**HIGH EFFICIENCY & LOW EMISSIONS FOR
CONTINUOUS POWER APPLICATIONS**

Now available from Cat® dealers throughout North America, the new Cat XGC1900 natural gas power module provides up to 1900 kW of continuous power to support large-scale applications such as utilities, municipal infrastructure, fresh water and wastewater treatment plants, and mining and quarry sites.

The new XGC1900 natural gas power module is a highly efficient and power-dense solution with NOx emissions as low as 250mg/Nm³ without requiring aftertreatment.

Fully designed and tested by Caterpillar, the Cat XGC1900 uses proven technologies seamlessly integrated to enable simple, reliable operation. It's engineered for flexibility by easily switching between 50 and 60 Hz and across a range of voltages, enabling one power module to satisfy varying load requirements in diverse regions and applications.

Powered by the G3516H gas engine, the new module packages a CSA-certified gas train, plus cooling, air handling and other essential components in a weather-resistant 40-foot container that streamlines transport and deployment while providing exceptional sound attenuation.

Additionally, the XGC1900 has best-in-class fuel efficiency and reduced oil consumption as well as longer service and maintenance intervals, significantly reducing operating costs.

“As customers increasingly embrace the advantages of using gaseous fuels, this high-performing power module addresses large-scale continuous power needs with a potent combination of reliability, serviceability and low emissions,” said Tom Caldwell, global general manager for electric power rental solutions at Caterpillar.

Dynamic capabilities

The Cat XGC1900 gas generator set provides numerous benefits that improve performance and reduce operating costs. It features Caterpillar's EMCP 4 control system, providing engine and generator set control, protection, and monitoring. An externally accessible, package-mounted control panel and power distribution panel facilitate operator access and serviceability.

The XGC1900 is equipped with Cat Connect technology to remotely track and manage the generator set and improve operational efficiency. The telematics send real-time information on fuel status, battery voltage, and run status. Connected assets support peak operation with timely insights that help customers better control costs, improve performance and reduce risks.

Providing excellent response in high ambient conditions and high altitudes, the Cat XGC1900 is engineered for high fuel tolerance, allowing for the use of gases with low methane numbers.

Additionally, it supports reduced oil consumption, as well as longer maintenance intervals.

For additional information about Caterpillar's complete range of rental power solutions, visit www.cat.com/rentalpower

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AIR POWER PERFECTED

Need portable compressed air on the job? There's no better combination than a Sullair compressor and a Cat® C4.4 engine. You get reliable air flow, great fuel efficiency, quiet operation and easy service access.

For more than 50 years, Sullair has been on the leading edge of stationary and portable compressed-air solutions. The company was one of the first manufacturers to execute rotary-screw technology in air compressors, and now Sullair compressors are famous throughout the world for their legendary durability.

Industry leaders in over 64 countries use Sullair equipment every single day. These include companies in the medical, pharmaceutical, automotive, petrochemical, food and beverage, construction, rental, mining and power-generation industries.

Sullair compressor quality is supported by three important pillars: reliability, durability and performance. The engines that power the compressors are critical for upholding these standards, and that is why Sullair engineers chose Cat® engines. The Cat C4.4 engine powering Sullair portable air compressors delivers reliable air flow, fuel efficiency and quiet operation.

The Cat dealer network is another benefit to renting a Sullair air compressor, as the engines can be serviced quickly to minimize downtime.

Why Rent From The Cat® Rental Store?

The Cat Rental Store offers products in a wide range of sizes, configurations and capabilities. Our inventory includes power generation products like generators and engines to keep your jobsites and equipment operating at maximum capacity. We supply businesses in a wide range of industries with an assortment of energy rental equipment at affordable rates.

Besides our huge selection of top-quality equipment rental products at competitive rates, we'll help you set up a flexible rental arrangement that works for your company. You can rent a machine or work tool attachment for a day, a week, a month or longer.

We'll also be there to provide reliable and fast repair and maintenance service whenever you need it. Professional on-site operator training is available as well so that you and your team can use the equipment as productively and safely as possible.

Feel free to call us at 1-800-RENT-CAT, or contact Cleveland Brothers.

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POWER ON DEMAND

NEW DG350-DG500 NATURAL GAS GENERATORS

New gas generator sets from Caterpillar in the 350 kW to 500 kW class bring the benefits of lean-burn natural gas to a wide range of applications.

Designed utilizing Caterpillar's deep gas engine development expertise, the new generator sets deliver high power density and provide an optimal solution for numerous energy projects.

Available in both standalone and modular parallel configurations, these new generator sets provide improved fuel efficiency and extended annual run times. These gensets are exceptional performers in energy management applications, such as demand response programs that compensate large energy users for producing extra power during periods of peak demand. The technology also enables fast response for emergency standby power.

The compact footprint of these generator sets makes them easier to install on your site. They also meet emissions regulations without aftertreatment, resulting in cost savings and lower emissions.

Common applications include:


- Small- and medium-sized industrial and manufacturing applications
- Agricultural facilities
- Municipal infrastructure
- Commercial enterprises
- Office buildings

Demand response

When electricity demand soars, so does the cost of power. Cat® DG350-DG500 natural gas generators are designed for demand response programs. Offered by utilities, these programs compensate large energy users for producing extra power during periods of high consumption—such as extremely hot or cold weather or when people return home from work—and exporting it to the grid.

Why is demand response important?

The electrification of society is significantly increasing energy demand. The traditional model—large, centralized fossil-fuel power plants—isn't fast or flexible enough to keep up with increased demand. As the threat of utility power outages increases for many areas of the U.S., demand response participants can reduce demand on the grid when more energy resources are needed.

Utilizing gas generator sets in conjunction with demand response programs could be the perfect combination for your energy needs. 

To learn more, contact the power systems experts at our dealership.





NEXT GEN POWER

LEGACY POWER PLANT MODERNIZES WITH CAT® C175S

CUSTOMER PROFILE

Colby Public Power

Location: Colby, Kansas

Application: Standby Power

Cat® Equipment: C175 diesel gensets (2)



Located 53 miles from the Colorado border, Colby, Kansas serves as the unofficial regional hub for nine counties in the northwest corner of the state. Surrounded by rural countryside, the city’s slogan is ‘Oasis on the Plains.’

Situated just north of I-70, Colby serves as a stopover point for truckers and motorists who take advantage of full-service operations at three major truck stop chains.

“A lot of people come here from smaller communities for health care, shopping, entertainment and education,” says Colby City Manager Ron Alexander. “We really capitalize from having a major interstate that runs on the south end of our community, with travelers stopping on their way to or from Denver. We have numerous hotels, restaurants and shopping areas that rely on continuous power to operate.”

Two years ago, the city built a new 60,000 sq. ft. community center, which includes a state-of-the-art gym that hosts athletic events and serves as another regional draw. A new 175,000 sq. ft. hospital is expected to be fully operational in 2025.

With a population just under 6,000, Colby has experienced growth to the point where more housing is needed, Alexander says. The city is adding single family homes, duplexes, and apartment complexes. And as it expands, more infrastructure will be required and the demand for power will only increase.

“When you consider the electric vehicle charging stations that are appearing at the truck stops, that’s an extra layer of energy that will be needed,” Alexander says. “Walmart has a charging station, and more residential vehicle charging stations are coming into the mix.”

Evolving energy needs

Until the early part of the 20th century, no power lines reached the city. Colby is a fairly typical example of many small communities in Kansas that established their own generating plants to meet growing energy needs. The City of Colby has owned and operated a municipal power plant since 1910.

Once grid power was established to small communities such as Colby, these aging power plants were eventually transformed to serve primarily as a source of backup power. In many cases, the older power plants have become outdated and too expensive to maintain, to the point where a new generating source is needed.

That's why Colby recently added a second Cat® C175 diesel generator set at the city's power plant, as it continues to transition from its legacy generating equipment. The two Cat gensets can provide up to 6 MW of combined power and are housed in enclosures positioned next to the substation at the power plant.

"Our original power plant equipment is pretty outdated," says power plant supervisor Trevor Crane. "When it starts up, we have to check all the gauges. There's a lot of manual tasks involved compared to our new Cat gensets, where you just push a button to start them and you can control what you want to do with a few simple commands. These generators are so well maintained and easy to run."

Whereas the generators in the old power plant operate on a shared



water-cooling system, the Cat C175s are equipped with their own radiators, Crane says, meaning there are no concerns that they might be running too hot.

During a capacity test conducted earlier this year, one of Colby's 70-year-old generators failed.

"We were looking at a repair cost of \$260,000 on an aging one-megawatt generator," Alexander says. "So, it was an easy decision to use that amount of money as a down payment on the next generation of efficient power generating equipment from Caterpillar.

"It's just that ease of being able to go to a touch screen and fire up an engine versus all the work that it takes to get those older generators fired up and running," Alexander adds. "So it just streamlines that process. For us, long-term sustainability is a priority."

Part of the transition to newer generating equipment is simple

demographics. An aging workforce that knew how to operate the old power generation equipment is close to retiring, or has already done so, says Cliff Gamblin, a territory sales manager for Cat dealer Foley Power Solutions.

"And it's not just a one-man job," Gamblin says. "You need to have multiple people present to follow a sequential series of steps that include monitoring temperatures and pressures and things of that nature. With the updated controls on the new Cat equipment, fewer people are required to bring the updated, much higher tech system online, which means that the city can have reliable power back on in a much shorter time frame."

Flexible power

When Winter Storm Uri chilled large areas of the western, central, and

Continued on page 12



Legacy generator



New Cat® C175

southern U.S. in February 2021—straining the power grid in some places so severely that millions of Americans had to go without power in below freezing temperatures—the cost of power soared.

But with the first of its two Cat C175 diesel gensets already in place—it was installed in 2019—Colby weathered the storm without loss of power.

“In the wake of the storm, energy prices were way overinflated, and we were able to run our power plant,” Alexander says. “Having the ability to produce our own energy saved our community about \$1.7 million during that critical timeframe.”

Adds Crane: “I think we ran for 38 hours straight, and the Cat generator performed flawlessly. So, these gensets are essential for situations when the cost of power is high, or when there’s a grid outage.”

Colby can also fire up its generators when its local utility (Midwest Energy) needs more power, especially during times of extreme heat and cold.

“If they’re local utility calls and says the grid is having issues, they simply ask the city to run and carry its own load, which substantially reduces the load on the grid,” Gamblin says. “As we see the load on the grid grow, we forecast that these gensets are going to be called upon more in the future.”

Packaged solution

The Cat C175s offer a good solution for communities like Colby in that they are factory certified and compliant with

“We were looking at a repair cost of \$260,000 on an aging one-megawatt generator. So, it was an easy decision to use that amount of money as a down payment on the next generation of power generation equipment from Caterpillar.”

RON ALEXANDER, City Manager, Colby, Kansas



U.S. EPA Tier 4 emissions standards, Gamblin says.

“That’s a big driver for communities like Colby, because they don’t have to add emissions control equipment to this unit in order to maintain the air permit,” he says.

Six years ago, Foley offered a similar solution at a municipal power plant in Johnson City, Kansas, and plans to extend the blueprint to other communities with aging power plants across the state.

“As far as planning and engineering, we’re working with an enclosure manufacturer to standardize the equipment,” Gamblin says. “Obviously, there’ll be some variations involved for each customer application, but we’re trying to make it a standardized package and continually improve it as we go.”

Going forward, Colby Public Power plans to retire the engines in the old power plant as it adds more modern generating capacity.

“These Cat gensets are the future,” Crane says. “And we’re looking to add another four more.”

Crane knows he can count on timely assistance from his Cat dealer when circumstances require it.

“Back in ‘21, when we had that cold snap, we had an issue with the DEF (diesel exhaust fluid) system, and a technician from Foley was here in 30 minutes. They quickly diagnosed the problem and freed it up. And we were back online and running with minimal disruption.”

So as far as we are concerned, Foley Power Solutions is a very dependable organization with an experienced, well-trained team of professionals.”





MOUNTAINTOP ATTRACTION BACKED BY CAT® C27

As the farthest east of the Rocky Mountain peaks, Pikes Peak is the 31st highest out of 54 in Colorado.

Located just west of Colorado Springs, Pikes Peak is one of the most visited peaks in the world.

At 14,115 feet above sea level, the new Pikes Peak Summit Visitor Center is the highest-altitude visitor center in the world. Following three years of construction—when crews worked an abbreviated schedule due to limited oxygen—the new \$65 million visitor center opened in June 2021.

The visitor center is designed to withstand the summit's extreme environmental conditions. Nestled into the mountain, exposure to gale-force winds is minimized, while the mass of the building provides sheltered outdoor areas to enjoy the views.

Visitors can experience breathtaking views on an elevated pathway and overlook, which is designed to help protect the summit's fragile tundra. The building and outdoor walkways are designed to create a seamless, immersive experience. From arrival at the summit and through all steps, visitors are surrounded by the natural forms of what is commonly known as "America's Mountain."

The 34,000 sq. ft. facility is embedded in the mountainside and formed inside and out using local materials and complementary rustic ones, including pine, Douglas fir, quartz sandstone, and pre-weathered Cor-ten steel. The building opens to a view of neighboring Mount Rosa, with the upward angle of its roof's slope matching that of the viewing angle from the top of the lobby's grand steps.

Inside, this frames a 37-foot-tall glass wall, from which light and views filter into every corner of the visitor center.

The center features interactive displays, plus retail and fresh menu options, including a famous high-altitude donut recipe used since 1916.

Continued on page 14

CUSTOMER PROFILE

Pikes Peak - America's Mountain

Location:
Cascade, Colo.

Application:
Standby Power

Cat® Equipment: C27 diesel genset,
Medium Wheel Loaders (2), Motor
Graders (2)



The new building replaces the Summit House, which opened in 1964. The very first summit house was constructed in 1873, and an original wall from that structure has been preserved on the summit. It had welcomed guests like Katharine Lee Bates, who authored “America the Beautiful” following her visit to the summit in 1893.

The visitor center and 19-mile highway are operated by Pikes Peak - America’s Mountain (PPAM), a City of Colorado Springs enterprise, through a special use permit issued by the U.S. Forest Service.

The new visitor center is part of the Pikes Peak Summit Complex, which also houses a Colorado Springs Utilities communications facility and a new High-Altitude Research Laboratory operated by the U.S. Army Research Institute of Environmental Medicine (USARIEM).

Sustainable structure

The Pikes Peak Summit Visitor Center is the most sustainable high-altitude structure in the country, if not the world. The building is designed to achieve Leadership in Energy and Environmental Design (LEED) Silver certification, a globally recognized symbol of sustainability achievement. Since opening, the building has garnered numerous design awards.

It also strives to achieve the Living Building Challenge (LBC), which is a two-year certification process for highly sustainable, net zero buildings. To meet the challenge, the visitor center must be regenerative in nature. This means it must be self-sufficient and remain within the resource limits of its site; connect occupants to light, air, nature, community and food; and create a positive impact on the human and natural systems that interact with it.

“I am proud to say that the Pikes Peak Summit Complex embodies the USDA Forest Service goals of harmonizing the environment, restoring natural resources and incorporating the cultural values of Native American tribal communities,” said Frank Beum, regional forester for the U.S. Forest Service Rocky Mountain Region. “Visitors worldwide can now enjoy this beacon of American history in a new and wonderful way.”

Backed by Cat® power

Through a competitive bidding process, Cat® dealer Wagner Power Systems was selected to deliver and install a backup power system for the new Pikes Peak Summit Complex. A Cat C27 diesel generator set supplies 640 kW of standby power for the new visitor center, which welcomes more than a million guests annually.



The Cat C27 meets ISO 8528-5 transient response requirements, and can take on 100 percent rated load in one step. Operating at Pikes Peak’s high altitude, the C27 performs well, and only derates by about 110 kW from its maximum nameplate rating of 750 kW.

“Pikes Peak features some of the harshest conditions at any National Historic Landmark in North America, with temperatures dropping to as low as 40 degrees below zero and winds gusting up to 150 mph,” said J.R. Bond, vice president of business units for Encore Electric, the electrical contractor for the Pikes Peak Summit Complex.

“Caterpillar has an impeccable reputation for performance that is critical to operations while keeping guests and staff safe and comfortable at all times.”

Since the visitor center opened, the Cat genset has provided power to the facility for extended hours on two occasions.

In May 2022, Pikes Peak received a snowfall that ranged from one to three feet. The weight of the snow snapped some overhead power lines, cutting off power to the summit. In that instance, the Cat C27 ran continuously for 50 hours. On several other occasions, the generator has supplied power during shorter outages.

This past summer, an F1 Tornado touched down on the mountain and remained on the ground for three miles, once again cutting off grid power to the summit. The generator ran 47 hours



without interruption during that time to keep operations running smoothly, as the visitor center remained open to guests.

The Cat generator runs all of the electric-powered equipment—including air handlers, water pumps, the wastewater treatment facility and grease pumps—basically everything mechanical that’s necessary to maintain continuous building operations.

The visitors center relies on technicians from Wagner Power Systems to perform regularly scheduled maintenance. The facility staff also runs a 30-minute weekly test to ensure the Cat C27 is in peak operating condition.

Additionally, Pikes Peak - America’s

Mountain maintains operations with two Cat motor graders and two medium wheel loaders.

Cat power solutions provide unmatched performance and reliability in the most challenging environments in the world, from mine sites above the Arctic Circle to telecommunications towers at the equator, notes Jason Kaiser, Senior Vice President of Caterpillar’s Electric Power Division.

“The power solution from Wagner Equipment and Caterpillar is ideal for helping Pikes Peak - America’s Mountain provide sustainability, safety, and comfort for its major stakeholders and visitors.”



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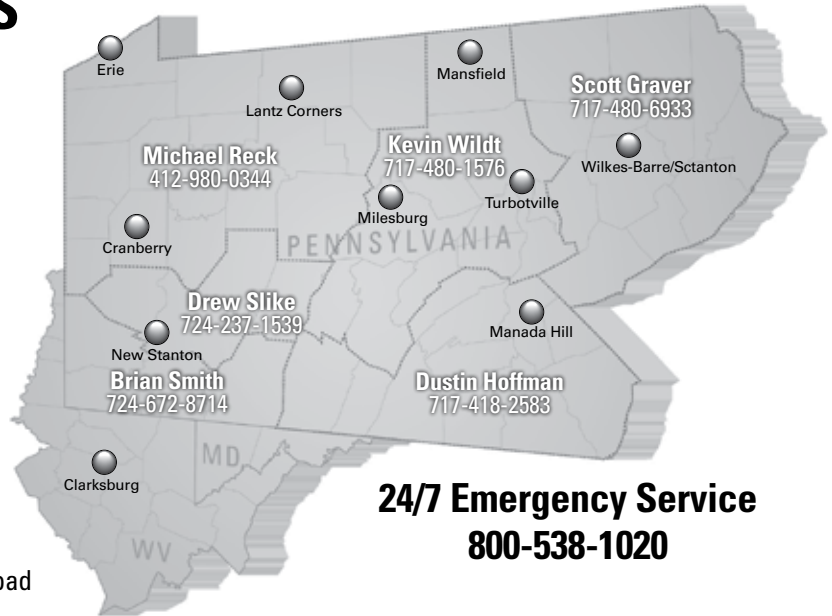
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