SUMMER 2018

# RUNREADY™



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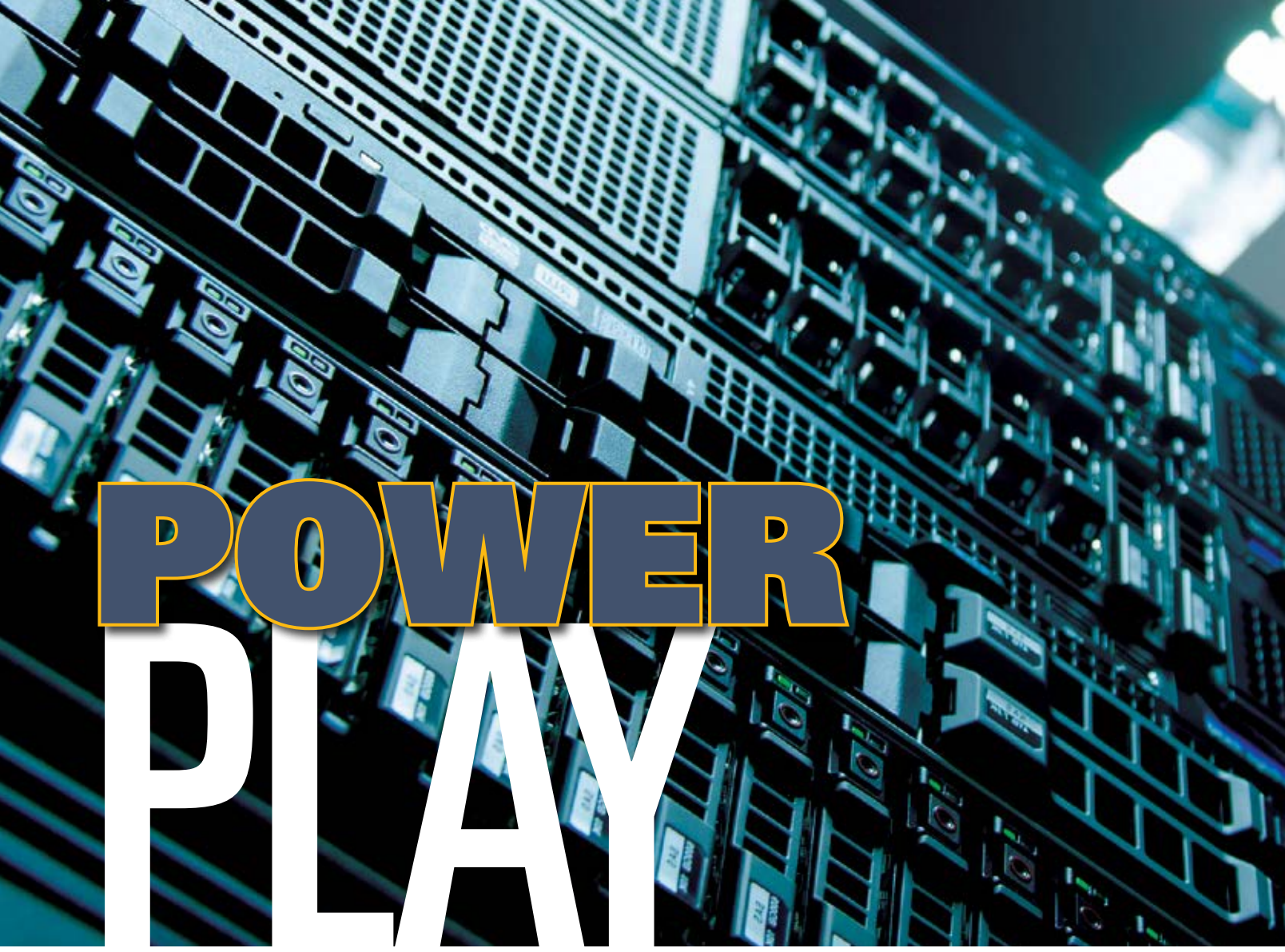

# POWER PLAY

## THERE'S A STRONG CASE FOR CONVERTING DATA CENTERS FROM DIESEL TO GAS-POWERED

The energy needs of the data center industry continue to grow at a brisk pace. In the past, preferred data center locations were located near inexpensive, reliable power sources.

Today, such locations are more difficult to come by, and pressure is mounting to find alternate power solutions that will be less demanding on the grid, particularly when electrical demand is high.

While many data centers derive sufficient self-generation capacity from their diesel standby units, the viability of running those units to relieve the demand on the grid is neither economically feasible (operating cost would be prohibitive due to high fuel cost) nor allowable by current air board restrictions that put limits on yearly hours of use. The function of diesel emergency units is purely for backup power during utility outages.

On the other hand, gas-based generation has a much lower environmental impact in terms of emissions, and the cost of natural gas is significantly less than diesel fuel.

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Additionally, some utilities provide financial incentives to reduce consumption at times of grid congestion.

Under these conditions, it becomes economically and environmentally viable for a data center to utilize gas generator sets for cogeneration during non-emergency periods. How much cogeneration is needed depends on specific scenarios, but it could be as little as supporting non-critical loads to as much as powering the entire facility.

For an industry that must provide the highest level of resiliency, the idea of switching fuels from diesel to gas is a technical leap that may be viewed by some as a daunting proposition. The transition from diesel to gas can be achieved in four ways:

### 1. BUILD A PEAKING POWER PLANT COLOCATED WITH THE DC

As the least disruptive option, a peaking plant would be dispatched when the electrical demand from the data center on the utility needs to be curtailed. Whether the plant would provide additional grid support functions would be up to the owners. If the plant is designed to support the grid, it would need to comply with the respective country's grid codes (IEEE 1547 in the U.S.). On the other hand, if the peaking plant is purposed to support just the data center and offset the load on the utility, the grid codes would not apply in most cases, thereby simplifying the installation and connection approval process, and lowering capital cost.

### 2. CONVERT DIESEL UNITS TO DUAL-FUEL UNITS

Converting diesel units to dual fuel (diesel and gas) is a technically attractive solution. This generator has the response of a diesel engine, but the lower fuel cost of a gas engine. However, in the current regulatory environment, the units would need to meet the emission regulations of a prime power diesel engine and would require extensive exhaust aftertreatment at a substantial cost.

### 3. POWER NON-CRITICAL LOADS WITH GAS UNITS

The third option of powering non-critical loads with gas units provides a partial answer to offsetting some of the data center burden on the utility. Generally, non-critical loads account for less than a quarter of the total data center load. If that would be adequate relief, this may be an acceptable solution. Additionally, if the data center could use some of the heat generated by the gas units as a combined heat and power (CHP) solution, it would further improve thermal efficiency and reduce heating costs.

### 4. REPLACE DIESEL UNITS WITH GAS UNITS THAT HAVE HIGHER LOAD ACCEPTANCE CAPABILITIES

Direct replacement of diesel generator sets with gas generator sets is an ideal solution. While it's a common perception that gas units would fall behind in their load acceptance capabilities compared to their diesel counterparts, recent developments in gas engine technology have led to numerous breakthroughs in engine performance and have significantly improved their ability to accept load.

Current trends indicate that grid congestion will continue to rise as legacy power plants are being decommissioned. Increased market penetration of renewables and variable generation resources also affect the delivery of reliable power from the grid.

To counter the emerging volatility in the electric energy market, gas power generation provides a resilient, environmentally and economically sound solution for data center facilities. The cost of natural gas is at a historical low point and the supply is abundant.

A study commissioned by the U.S. Department of Defense concluded that the natural gas system is generally robust enough to handle two-week to three-month outages in the electrical grid. Historically, there have been very few outages in the natural gas distribution system, with firm delivery contracts exhibiting greater than 99.999 percent reliability.

***For more information about converting a data center to natural gas standby power, contact the power systems experts at our dealership.***

# STAYING POWER

## CAT® C-175-16 GENSETS POSITION RURAL COMMUNITY FOR YEARS TO COME

*Two years ago, Johnson City, Kansas was at a crossroads.*

Not only was the standby power generation equipment at its public works building more than 50 years old, but a senior superintendent who possessed the intricate knowledge to run the antiquated facility was on the verge of retirement.

"He was one of the last few that could operate the old system because there were lots of manual 'ins' to everything," recalls public works superintendent Tyce McMillan, who is responsible for operations in the small rural town (population 1,495) in southwest Kansas.

Prior to 1970, Johnson City provided all of its own power. That year, the municipality entered into an agreement with Sunflower Electric to provide power to the city. But when Sunflower's feed was interrupted, such as during an ice storm, the city supplied its own power using its four manually operated generators.

With the retirement of city superintendent Alan Schweitzer imminent, the city council evaluated three alternatives for maintaining a reliable source of power for Johnson.

The first would have eliminated the power plant and relied solely on Sunflower for all of the city's power. But the city would have no way to respond to power shortages originating with Sunflower.

The second involved installing three new 2 MW engines, non-EPA approved. However, because of their higher emissions, those engines could be used only for emergency purposes and would not produce any income from a Sunflower buyback.

The third option provided for two new 3 MW engines, approved by the EPA, each of which can run up to 5,000 hours a year since they have virtually no emissions. The city council chose the last option, in part because Sunflower agreed to buy the capacity of the new engines for two dollars a kilowatt on an as-needed arrangement over a period of 15 years. (Sunflower pays the city $12,000 a month to secure access to Johnson's generation capacity.)

After considering the second option, Johnson City officials ultimately opted for


**CUSTOMER PROFILE**

### Public Works Dept.

**Location:** Johnson City, Kansas

**Application:** Standby power, demand response

**Cat® Equipment:** C-175-16 diesel generator sets (2)


the purchase of two Cat C-175-16 diesel generator sets, which were sourced by Cat dealer Foley Equipment. The generator sets were installed in new enclosures next to the old power plant in May 2017, and commissioned during November.

"We wanted to go with a Tier 4 system to meet EPA regulations," McMillan said. "And when we called him, Cliff Gamblin from Foley came here immediately and worked with us to determine our exact needs. He set us up for the future with a power system that's going to last for a long time."

The Cat C-175 is factory-certified and meets all Tier 4 emissions regulations. A four-stroke diesel engine combines superior performance with excellent fuel economy, and with an output of 3 MW, comes in a size range that is not offered by other brands.

**Local control**

Historically, small towns in Kansas have owned their own sources of power generation.

*Continued on page 6*


Generator set enclosures

***To veiw the Johnson City video, go to Foley Equipment's YouTube page. >>***

The Rural Electrification Act of 1936 provided federal loans for the installation of electrical distribution systems to serve isolated rural areas of the United States. The funding was channeled through cooperative electric power companies, most of which still exist today. (Johnson City is part of Pioneer Electric Cooperative.) These member-owned cooperatives purchase power on a wholesale basis and distribute it using their own network of transmission and distribution lines.

Faced with a possible shutdown, Johnson City opted to modernize and take control of its energy future.

### Quick start advantage

When grid power is lost, the new Cat generators automatically switch on. The gensets are already running when Johnson City staff arrives.

"The previous version was a lot harder," McMillan says. "With the automation, it makes everything go a lot smoother. We no longer have hands-on controls. You're not trying to adjust the voltage and the frequency to parallel with the grid."

Adds power plant superintendent David Rohrenback:

**"These generators have made my job so much easier. The start time has been cut tremendously... I can have power fully restored in town in less than five minutes compared to 25 to 30 minutes with our old system."**

**DAVID ROHRENBACK**
Power Plant Superintendent
Johnson City Public Works Dept.

David Rohrenback, power plant superintendent (left) and Tyce McMillan, public works superintendent

"These generators have made my job so much easier. The start time has been cut tremendously. It's just so much simpler compared to what I'm used to. Getting these Cat engines online with the Woodward easYgen paralleling controls is as easy as three button pushes. I tell it what load I want, and then I hit start and within a minute the generators are up and running. I can have power fully restored in town in less than five minutes compared to 25 to 30 minutes with our old system."

As city superintendent, McMillan has many other responsibilities in addition to keeping the power on. Not only do the generators start and load fast, but the system requires a minimal amount of monitoring.

"It's just the ease of it," he says. "It makes you relax a little more even if you do have an emergency.

"Everybody takes electricity for granted, and people notice very quickly when it's not there," McMillan says. "When it only takes a few minutes to get things back online, they don't know the difference. It's better for public relations, because people aren't knocking on your door wanting to know when they're going to get their power back."

Earlier this year, the Cat gensets performed flawlessly for eight hours when Johnson City disconnected from the grid for substation maintenance.

Meanwhile, as they acclimate to their new power plant, public works staff know they have the support of their Cat dealer.

"Foley Cat has served us really well," McMillan says. "We have a good relationship with Cliff, and when we have questions he is always available and provides the answers we need. And our technician, Rick Palmer is excellent. We love working with the Foley guys and picking their brains, and they like asking us questions too."

Adds Rohrenback: "They'll send a technician out as quickly as they can if it's needed—we couldn't ask for a better response time out of them. And they've just made this transition so much easier with the training they gave us. Everything went a lot smoother than I anticipated."

# FOLEY POWERS LIFE IN RURAL KANSAS

In the case of Johnson City, Foley Equipment designed a power solution that enables a steady stream of income, as well as delivering robust technology that provides fast-start capability in an emergency.

"We're replacing equipment that was 50 years old, or more," territory sales representative Cliff Gamblin says. "Foley Cat has been around for 76 years. We will support the City of Johnson for the next 50-plus years and ensure that this equipment is operational and providing the citizens here with true clean power.

"Back then, people didn't have the utility infrastructure that is in place today," Gamblin says. "And now, here we are still using these small power plants as a backup to keep the power on. Through the years, these small municipal-owned power plants have been a very important part of life in rural Kansas communities.

"We can provide the customer with a piece of equipment that truly fits what they want, and come up with a custom solution that they're looking for."

Once Foley Equipment is contacted by a customer, the Cat dealer has the depth of experience and necessary resources to design a solution that meets the customer's requirements. The electric power generation group also includes four territory salesmen, two project managers, an inside sales rep and two on-staff engineers. Additionally, Foley has 35 generator technicians strategically located throughout its territory.


Foley Equipment technician Rick Palmer (left) provides instruction

# GENERATOR SELECTION

## SAVE TIME, OPTIMIZE YOUR POWER SOLUTION SEARCH

Any size or shape. In any regulatory environment. When you need power, Caterpillar is equal to the challenge. Our commercial and industrial generators are used in a variety of applications.

Time is a valuable and always shrinking commodity for professionals in charge of researching, designing, and specifying power solutions. You don't want to sift through pages and pages of generator sets and specifications to find the one that meets your need.

That's why the Cat® power generation website has a new feature that enables visitors to fine-tune their searches for power solutions by country or region. Users can quickly and easily identify the specific products that meet application criteria without needing to know specific emissions, legislation, or safety regulations within a particular country or region.

Website users can see available power solutions grouped by geographical regions that include the United States and Canada, as well as Brazil, China, the European Union, India, Singapore and the rest of the world. Visitors can then further narrow their searches for selected diesel generator sets to application subsets that encompass frequency, safety regulations and emissions configuration classifications.

This new feature is especially helpful for professionals working beyond borders to specify electric power solutions. Plus, it's a powerful complement to Cat SpecSizer, Caterpillar's industry-leading generator set sizing software. SpecSizer helps professionals specify the properly sized generator set by considering factors such as site conditions, load characteristics and required performance.

**Visit www.cat.com/power-generation**, and then select the appropriate search criteria in the column under the "Narrow Results > Country of Use" subhead on the left side of the page. You can also contact the power systems experts at our dealership to help determine your specific needs.

# CASH for TRASH

## LANDFILL WASTE-TO-ENERGY SYSTEM REDUCES EMISSIONS, AND SELLS POWER TO THE GRID

When the Mount Trashmore landfill in Cedar Rapids closed in 2006, waste from Iowa's second-largest city was diverted to an existing landfill in nearby Marion. While Mount Trashmore reopened in 2008 to accept 480,000 tons of waste generated by major flooding, today the city landfill is being converted to a recreational biking and hiking trail, with scenic vistas of downtown Cedar Rapids.

In addition to Mount Trashmore, the Cedar Rapids Linn County Solid Waste Agency operates the 75-acre landfill in Marion, which serves 17 communities in the county. The facility includes a 44,000-square foot resource recovery building that is used for processing hazardous household materials and transferring recycled materials.

When it started accepting waste from the entire county, the landfill near Marion developed quickly, with four new cells added between 2007 and 2013. The landfill currently accepts about 180,000 tons of municipal waste annually. In 2009, the agency installed a system of wells to collect methane gas from the original 30-acre cell and a 13-acre plot.

*Continued on page 10*

**CUSTOMER PROFILE**

**Cedar Rapids Linn County Solid Waste Agency**

**Location:** Marion, Iowa

**Application:** Waste to energy

**Cat® Equipment:** G3520C gas generator set

Solid Waste Agency

Landfill gas is typically made up of 50 percent methane, 50 percent carbon dioxide, and trace amounts of various hazardous air pollutants known as non-methane organic compounds (NMOCs). The U.S. Environmental Protection Agency (EPA) requires large landfills that emit NMOCs from landfill gas in excess of 50 megagrams (Mg) per year to control emissions.

In general, controlling emissions involves drilling collection wells into the landfill, and routing the gas to a suitable energy recovery system or combustion device. Combusting the landfill gas destroys most of the NMOCs in the gas while oxidizing the methane gas to carbon dioxide. This process also reduces the landfill's greenhouse gas footprint, since methane has a 25 times greater global warming potential compared to carbon dioxide.

**Powerful solution**

Five years ago, Cedar Rapids Linn County Solid Waste opted to install a Cat® G3520C gas generator set, which produces electricity using the methane as fuel to run the generator. The electric power produced by the Cat generator is sold back to the local utility, Central Iowa Power Cooperative (CIPCO). Annual revenue generated from power production is more than $500,000.

"Having a gas system in place that diverts landfill gas to a control device which burns it off is greatly beneficial to the environment and public health, because it reduces our emissions footprint," says Garrett Prestegard, an environmental engineer with the Cedar Rapids Linn County Solid Waste Agency. "To be able to collect landfill gas and not only burn it to help control our emissions, but have the added benefit of generating electricity and selling it to the grid is a very positive thing."

About 500,000 cubic feet of gas is consumed daily by the agency's Cat generator set. Condensation is removed from the landfill gas before it is combusted in the engine. Otherwise, the gas receives essentially no pretreatment. One of the strengths of the Cat G3520C is the ability to run on relatively low concentrations of methane. The concentration of methane at the Marion landfill averages about 50 percent.

"This Cat engine is a lean burning unit, which means it has additional inerts within the gas stream," Prestegard says. "The inerts in the gas stream absorb heat during the combustion process, which reduces exhaust temperatures. This limits the formation of $NO_X$ emissions, and helps us meet our air quality requirements."

The 2,242 hp Cat G3520C advanced gaseous-fueled generator set features high-efficiency and long service life to support low-energy fuel from landfill applications. The G3520C 60 Hz generator set is specifically designed to protect engine components against landfill gas contaminants, thus eliminating the need for elaborate fuel-treatment systems and special maintenance and service

**"To be able to collect landfill gas and not only burn it to help control our emissions, but have the added benefit of generating electricity and selling it to the grid is a very positive thing."**

**GARRETT PRESTEGARD**
Environmental Engineer
Cedar Rapids Linn County
Solid Waste Agency

practices. The G3520C generator set also provides a lower installed cost per kW, with power densities as high as 100 kW per cylinder.

Many utilities are mandated to provide a certain percentage of their power from renewable sources. Utilization of landfill gas generator sets can result in both renewable energy credits and carbon reduction credits.

By purchasing renewable energy, CIPCO enables its member systems like East Central Iowa REC to offer green energy options. Nearly 60 percent of CIPCO's electricity is generated from emission- and carbon-free resources, minimizing the impact to the environment. All or some of the renewable energy credits associated with this generation may have been sold or will be sold in the future, to other parties, or may be used to comply with future regulatory requirements.

### Heat capture

Waste heat generated from the power plant can be used directly by adjacent businesses. The Cedar Rapids Linn County Solid Waste Agency collects the excess heat from the Cat generator set to provide heating to its nearby 44,000 square-foot resource recovery building.

A heat exchanger unit rests on a skid adjacent to the Cat generator enclosure. There are two parallel coolant systems, one that runs through the engine and another one that runs through the heat exchanger to the resource recovery building. The heat is transferred from one coolant system to the other, and the heated coolant is piped back to the resource recovery building. At that point, it's sent through a radiant-heating floor system in the drive-thru aisle, and is also sent to a snow melt system adjacent to the truck bays outside. The generator waste heat is also used to provide heating through three makeup air units.

"Capturing the thermal energy and using it to heat our resource recovery building provides a nice added benefit," Prestegard says.

### Dealer support

Cat dealer Altorfer provides all maintenance for the generator set through a 10-year Customer Support Agreement. That includes regularly scheduled maintenance, oil changes, spark plugs, top end in-frame overhauls and a major overhaul once the genset reaches 60,000 hours.

Altorfer technicians are available to troubleshot and resolve issues if they arise. On average, the generator operates 24/7, and uptime is high, averaging about 95 percent.

"Altorfer is good about getting out here on short notice when we're having a problem and helping us work through it," Prestegard says. "All of their technicians and service people are really knowledgeable, and just having them locally is fantastic. We count on their expertise to keep our Cat genset running.

"When I started out here, I didn't have a lot of experience in terms of landfill gas engines like the system we have," Prestegard says. "So I've relied on Altorfer's expertise quite a bit, and I've really learned a heck of a lot about this system in the two years that I have been here."

Within two years, the agency plans on expanding the gas collection system into the more recent phases of the landfill.

"We'll be at the point where we have enough waste depth to go out and drill wells into those areas," Prestegard says. "And when we do that, we certainly anticipate maxing out the capacity of our current engine. We'll probably be at a stage where we will be collecting enough methane to support the installation of another Cat genset."


# A BREATH OF FRESH AIR

## NEW PEAKING PLANT SUPPLIES CLEAN POWER TO THE UTAH VALLEY

As the third largest city in Utah, Provo rests in a valley at the foot of Wasatch Mountains 50 miles south of Salt Lake City. The home of Brigham Young University (BYU), Provo and the surrounding area have hosted the birth of a number of successful technical startup companies, earning it the unofficial title as the "Silicon Slopes."

This encompasses a cluster of information technology, software development, and hardware manufacturing and research firms along the Wasatch Front.

But in recent years, Provo's outdated power plant was no longer in step with the area's high-tech growth. Built in 1940, the aging plant was experiencing mechanical issues

that were becoming too expensive to fix. What's more, the power plant contributed to air quality issues in the Utah Valley.

The mountain slopes and the valley below act like a bowl and create inversions during winter months, which can trap pollutants near the valley floor. With no way to dissipate, these pollutants can lead to coughing and increased asthma attacks for residents. While power plants aren't the biggest contributor to smog in the valley, reducing those emissions does help make the air cleaner for over one million area residents.

"Everything was crumbling down around us, so we decided it was best to start from ground zero and build a new plant," said Kat Kinford, an energy efficiency coordinator with Provo Power.

**Clean power**

In 2016, Provo's former power plant was demolished after serving the community for more than 75 years.

It was replaced last November by a new state-of-the-art power plant that's considered the cleanest burning natural gas-fired power plant in the state. Five Cat® G3520H natural gas generator sets provide over 12 MW of peaking power to Provo and the neighboring municipalities of Spanish Fork, Salem, Nephi, Levan and Manti.

The six communities are part of the Utah Municipal Power Agency (UMPA), a joint action agency that coordinates all power needs for its members. Provo Power is the largest municipal power utility in the state, and represents 65 percent of UMPA's total power distribution. BYU is one of Provo Power's largest customers.

The new plant provides reliable power to a growing population while minimizing the impact on local air quality. Its post-combustion emissions after-treatment technology reduces nitrogen oxide emissions by 93 percent, carbon monoxide emissions by 90 percent and formaldehyde emissions by 90 percent. In addition, the ecoCube System converts nitrogen oxide into nitrogen and water vapor, reducing smog.

"UMPA made a commitment to use the cleanest emission control technology and install the most efficient generating equipment in order to meet the needs of our customers," said Kevin Garlick, power resource manager at UMPA. "We periodically take measurements off the exhaust of the new power plant to compare it to the pollutants that came out of the old plant, and they are significantly less—as much as 90 percent cleaner. This is a very unique and clean power plant that produces electricity along the Wasatch Front."

UMPA dispatches the plant anywhere from six to 10 hours a day when the cost of power from the grid is high. This is typically in the morning and the late afternoon when people return home from work and start using appliances that consume electricity.

"We need to have resources to meet that demand, because electricity is one of those commodities that is delivered fresh and in real time—it isn't stored," Garlick says.

The plant then is fired up remotely from UMPA's main office in Spanish Fork. It can operate for a few hours to cover the peak, and once that load starts to drop later in the day, the generator sets are taken offline.

The decision to run is made from a scheduling room in Spanish Fork, which has 24-hour coverage. Schedulers have the responsibility to look at all of the loads from the six member cities and match them up with the available power generation resources.

"They also can look to the market," Garlick says. "There is a real-time market

*Continued on page 14*

**CUSTOMER PROFILE**

## Utah Municipal Power Agency

**Location:** Provo, Utah

**Application:** Municipal Utility - peak shaving and load unbalance market

**Cat® Equipment:** Five G3520H generator sets (2.4 MW each), 15 kV utility paralleling switchgear


out there that people can buy from at whatever price is being provided. They take that into consideration, and then stack up the resources to meet the load based on that real-time information."

Another benefit is the ability to provide immediate power needs during a power outage from the grid. This could result from severe winter weather, flooding, or in a worst-case scenario, an earthquake.

"This is an important piece of our generation fleet," Garlick says. "It provides for peaking power when we need it. It can be used for emergencies if there's any time that the city becomes isolated from the grid. And it's also used for transmission reserves. We're able to run the plant to help offset costs that come from transmission services.

"We've had the plant now for six months and it has definitely been saving us hundreds of thousands of dollars over the last few months," Garlick adds.

**Long-term approach**

Cat dealer Wheeler Power Systems acted as the developer of the project, overseeing design and construction, as well as supplying the G3520H generator sets and Cat Switchgear.

UMPA's decision to choose Wheeler was the result of a five-year relationship that stems from the Cat dealer's long-term approach to partnering with municipal power associations and agencies.

"We started many years ago trying to work with the various municipal utility agencies," says Ken Green, a veteran business development manager for Wheeler Power Systems who recently retired from the dealership after a 46-year career. "We found that they're a very tight knit group, and you have to build a relationship with them and establish trust. They need to know that you're going to be there long term, and that you're willing to work with them and be a partner—that you're not just there for a quick sell."

This is accomplished by attending the associations' quarterly and annual meetings and attending educational sessions to learn about the municipal utility industry.

"We educate ourselves on what their needs are so that we can find out if we're a true fit," Green says. "We try to be involved with them as much as they'll allow us to be. It takes a little bit of time to work into that and gain their trust, but once they take you in as a partner, we're pretty tight."

By taking this approach, Green and his successor, Shane Minor, have learned how the utility industry works and what their concerns are.

"We try to understand what their business is, learn each different entity's concerns and needs, and then come up with a solution that fits that need," Green says.

For Provo Power, the solution is the fleet of Cat G3520H gensets, which provide quick response and reliable power at an economical strike price, and are ideally suited for energy balancing applications.

"Caterpillar takes a very conservative approach to their products as they design their equipment," Green says. "They look at it for long-term life and reliability. They also look at being as fair on the evaluation of their product as they can be. At Wheeler, we like to under-promise and over-deliver, and I think that carries through the full Cat engineering team all the way through to sales, the delivery of the equipment and the product support over the life of the installation."

With new Cat power plants in nearby Springville and Lehi (which will be commissioned next year), as well as facilities in Heber City, Hurricane, Santa Clara and Washington, the long-term

approach pioneered by Green has yielded results.

"One of the things we've learned in the generation business is that having good partners is critical to our success," Garlick says. "And when we decided to build a plant, one of the things we wanted to do was to select a vendor that really took into consideration our needs. I've known Ken Green and the Wheeler and Caterpillar people for years. I've seen them do a lot of different projects for other cities in the state of Utah, and I've always been respectful of their work and the value they put into their customer service."

### Staying power

Wheeler acted as the developer on the Provo Power project, with a general contractor coordinating all site work.

"When a small power plant is being built with our engines, our part of it can be 80 percent of the cost," says Minor, a government and utilities representative with Wheeler Power Systems. "We take that risk on anyway. If you look at the engines, the generators, the cooling systems, the lubricating systems, the oil makeup, the oil change system, the switchgear and the utility interface, we have that liability and responsibility anyway. We're here for the life of the project.

"If there's a problem at the plant, normally we get the first call whether it's an airflow problem or an engine problem, and we are down here right away to take a look at it," he continues. "So being in charge of it all, we basically have control on the design. If there's a design problem in this facility, we have nobody to blame but ourselves, Wheeler Machinery.

"Who should be the one to design a building other than the engine manufacturer who's installing the equipment in the building?" Minor says. "We have the expertise to know how the plant needs to be built to run right. So we take the approach to run the whole project. We hire the general contractor, and we control the design and the installation of the equipment to get the plant to function the best."

Once the plant is commissioned, the Cat dealer is still there to provide technical and operating expertise, as well as preventive maintenance.

"We're not the architect team, but we're the ones that take total turnkey responsibility," Green says. "So, the owner can come directly to us if there is a problem at the building during construction, and after the plant is completed. As Shane likes to say, the customer has 'one throat to choke.' No matter what it is, we're responsible for it.

"The contractor and the architect and engineer are gone after a year," Green says. "But we live with it for the 20-plus years after the plant is commissioned."

Garlick said Wheeler took great care to ensure that the equipment matched UMPA's specific requirements, and that the project and construction cost all came in on time, and at the specified amount.

**"We're happy with the final result, a highly efficient peaking plant that will serve us for years to come... and it has definitely been saving us hundreds of thousands of dollars over the last few months."**

**KEVIN GARLICK**
Power Resource Manager, UMPA

"A project like this has lots of different specialties or services that have to come together and work," Garlick says. "It's really nice to find a vendor that can take the lead, and who has the experience and the knowledge to pull it all together. And that's what we really liked about the Wheeler proposal. We didn't have to work with a building contractor, or another contractor to set the engines in place, and another electrical contractor to plumb it all up and connect it.

"Wheeler did a great job of pulling all those specialties together," Garlick adds. "And we only had to work with them in making it happen.

"We're happy with the final result, a highly efficient peaking plant that will serve us for years to come," he concludes. "And we know they are there for us whenever we need them."

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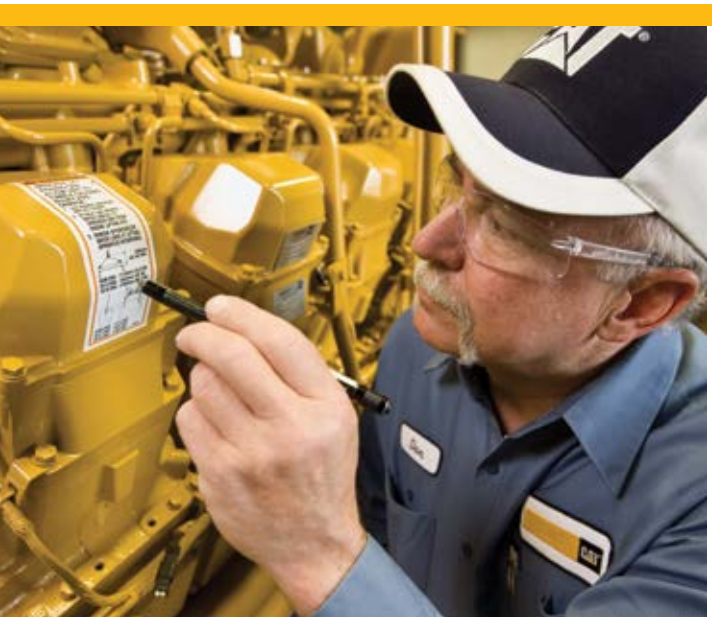
Delivers the power you need, when you need it, where you need it. Trust Toromont Rental Power to deliver the equipment, manpower, service and confidence you expect from Cat.

**24 HOUR** CALL US ON OUR RENTAL HOTLINE
**1-866-667-5544**

**BUILT FOR IT.™**





## OUR EXPERTS WILL HELP YOU GET THE JOB DONE—RIGHT

Whether you're installing a backup generator for your small business, working with an engineering firm to upgrade your manufacturing plant, or designing a new power station from ground up, our Power Systems experts can provide the right level of expertise and support—when you need them. Depend on our experts to help you:

- Reduce risks and delays that could impact your timeline
- Understand and assist with obtaining the necessary permits and approvals
- Manage proper installation
- Provide startup services and reliability testing
- Provide training to facility personnel as necessary

**Contact the Power Systems experts at our dealership for more information.**