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Spring/Summer 2022

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Natural Gas:

PEACE OF MIND — NOW AND TOMORROW

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GRU Natural Gas

INSIDE

FEATURE

IN EVERY ISSUE

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Natural gas celebrates Earth Day's past, present and future

This cleaning-burning fuel dominates the energy landscape.

By Drew Robb

With Earth Day approaching, it is important to take a step back and review how well the natural gas industry has performed in recent decades on the environmental front, why it is good for the environment today, and how it is preparing to be a responsible environmental steward for the future.

EARTH DAY'S PAST

Many don't realize how far the country has come from the old days of rampant pollution, heavy smog, dumping of toxic chemicals, indiscriminate use of pesticides and massive oil spills. The late '60s were a period of raised awareness about the need to take care of the planet. That led to the establishment of the Environmental Protection Agency (EPA) in 1970 and new rules impacting power stations as well as national air quality standards.

The 2022 Earth Day takes place Friday, April 22, with the theme "Climate Change."

Back then, there was a lot of discussion around power stations reducing their output of nitrous oxide and sulfur dioxide. Mark Axford, president of Axford Turbine Consultants LLC, noted that emissions from coal-based power plants were as much as 50 times higher than they are today compared to the latest state-of-the-art natural gas-powered generation plants. Today, the discussion has moved on to efforts to lower carbon footprint.

"As power generated from natural gas is so efficient, a modern plant emits about 50% less carbon dioxide than a modern coal plant that is outfitted with the latest environmental technologies," Axford said. "Natural gas is so clean that it burns without traces of soot, sulfur or mercury."

EPA data shows that annual emissions from the natural gas distribution system declined 69% from 1990 to 2019, even as natural gas utility companies added more than 788,000 miles of pipeline to serve 21 million more customers. In other words, despite a huge increase in population, the addition of a massive number of pipelines, and the fact that home users consume far more energy than ever, natural gas emissions fell dramatically.

EARTH DAY'S PRESENT

As a result, natural gas generation now dominates the energy landscape. According to the U.S. Department of Energy's Energy Information Administration (EIA), natural gas is by far the biggest source of power generation in the nation, with more than a 40% share. That is more than double the share of the next highest contributors, which are coal and all renewable sources, each at just under 20%.

Coal used to be the dominant source of power in the United States. But the country has seen a decade or more of coal plant closures. They have been replaced by the powerful combination of renewable energy sources and natural gas-powered generation facilities. While the number of renewable energy sources is steadily rising, the nation continues to rely on clean-burning natural gas to keep the lights on and provide the energy the nation vitally needs – both in the home and in industry.

Home appliances represent another area of strong environmental performance for natural gas. Over the past three decades, the energy efficiency rating of natural gas appliances has risen substantially.

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Modern natural gas ranges, ovens, cooktops and grills, for example, feature high efficiency and reliability as well as easy cleaning. And it costs about half as much to cook with a natural gas range as with a similar electric range. Many of the new models of natural gas-cooking equipment use an electronic spark ignition, rather than a continuously burning pilot. This saves an additional 30% on energy costs and minimizes the emissions emanating from home appliances.

The American Gas Association (AGA) reports that natural gas customers could save up to 67% this winter compared to customers using

THE FUTURE IS NOW: RNG COULD BE THE MOST RELIABLE AND COST-EFFECTIVE RENEWABLE ENERGY SOURCE

With renewable resources playing a big part in the nation's energy future, attention is turning to how Renewable Natural Gas (RNG) will help achieve critical objectives of a clean energy economy. Those include reducing greenhouse gas emissions, creating sustainable jobs and increasing the diversity of the energy supply.

At its full potential, RNG could well be the most reliable and the most cost-effective renewable energy source.

RNG is a pipeline-quality gas that is fully interchangeable with conventional natural gas.

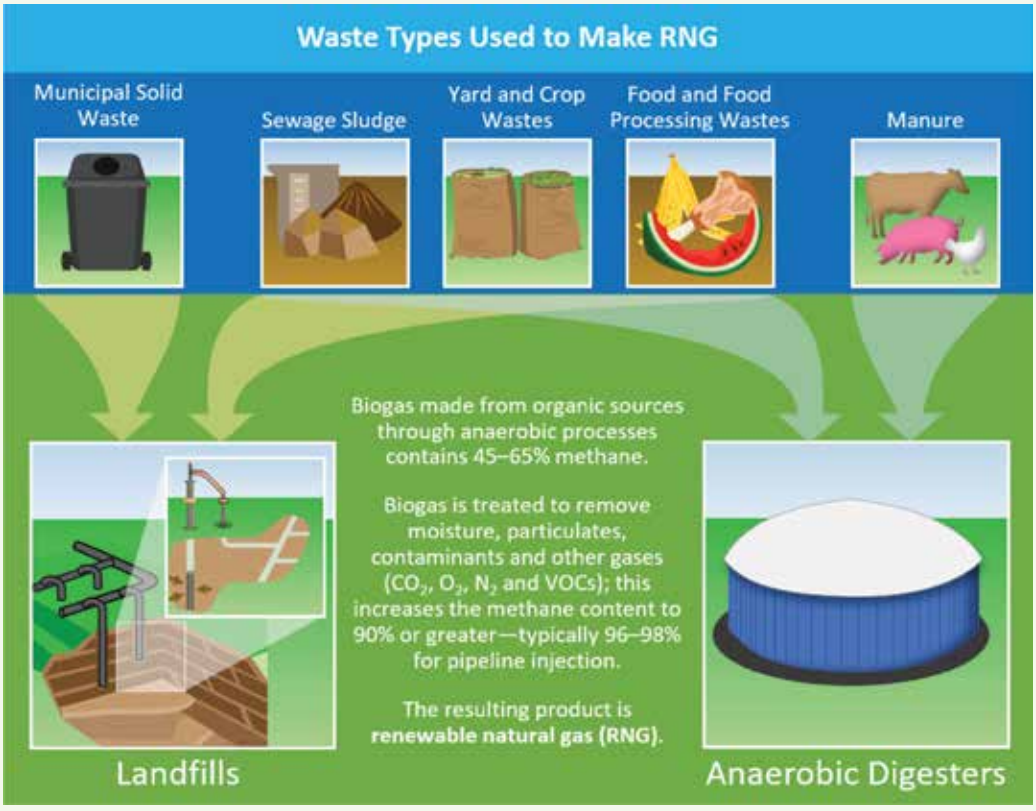
This ultra-clean and ultra-low carbon natural gas alternative is produced when organic waste breaks down and emits methane gas, called biogas, which can be processed and blended with, or used in place of, traditional natural gas.

RNG can be transported directly to homes and businesses using the existing natural gas infrastructure. It is carbon neutral and versatile. RNG can be used in homes and businesses, in manufacturing and heavy industries without the need to modify pipelines or equipment. It is also suitable for electricity production and as an alternative fuel for transportation.

The environmental benefits of RNG include:

- Reduction in greenhouse gas emissions (GHG): As RNG comes from animal waste and other biomass sources, the small amount of GHGs released are about 21 times less potent than methane released directly into the atmosphere. In effect, RNG represents the recycling of carbon that is already circulating in the environment, whereas burning a fossil fuel represents the release of new carbon emissions that were previously sequestered in the earth.
- Improved waste management. Collecting and processing animal waste from agricultural activities prevents run-off into local waterways and reduces groundwater contamination.

Numerous utilities have realized the benefits of using and promoting RNG to customers to



COURTESY OF THE ENVIRONMENTAL PROTECTION AGENCY

other forms of energy, while at the same time lowering their carbon footprints. Even though a colder winter is expected this year causing households to use more natural gas, they will still be saving money and lowering their carbon footprint due to the economic and environmental benefits of this fuel compared to other sources of energy.

Natural gas homes will also emit fewer emissions this winter. An Energy Star natural gas household could have a carbon footprint that is 19% lower than an Energy Star heat pump and 64% lower emissions compared to an electrical resistance furnace.

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protect the environment while still allowing customers to enjoy the fuel they prefer.

Black Hills Energy, for example, has joined the ONE Future Coalition, a group of natural gas companies working together to voluntarily reduce methane emissions across the natural gas value chain to 1% (or less) by 2025. It is comprised of some of the largest natural gas production, gathering and boosting, processing, transmission and storage and distribution companies in the United States.

Black Hills Energy serves over 1.3 million electric and natural gas utility customers in more than 800 communities in Arkansas, Colorado, Iowa, Kansas, Montana, Nebraska, South Dakota and Wyoming. With 15 active or in-service projects and over 60 potential future projects identified, Black Hills Energy is experienced in RNG production. At one of the current RNG projects, a landfill in Sarpy County, New England, produces enough pipeline-quality RNG to fuel nearly 6,000 homes a year.

"Social responsibility and sustainability are inherent to our company's mission and vision," said Linn Evans, president and chief operating officer of Black Hills Corp., the parent company of Black Hills Energy.

This demonstrates that the natural gas industry can minimize methane emissions and increase production and throughput while supplying much needed energy to the U.S. for years to come.

Another utility supporting RNG innovation is Chesapeake Utilities Corp. It recently completed the construction of its Noble Road Landfill Renewable Natural Gas pipeline project. Its subsidiary, Aspire Energy of Ohio, constructed the 33.1-mile pipeline, which will transport RNG generated from the Noble Road Landfill in Shiloh, Ohio, to Aspire Energy's pipeline system, displacing conventionally-produced natural gas. Aspire Energy partnered with RNG production and distribution company OPAL Fuels LLC and Rumpke Waste & Recycling to extract and capture waste methane from the Noble Road Landfill.

COURTESY OF CHESAPEAKE UTILITIES CORP.

Chesapeake Utilities Corp. recently completed its Noble Road Landfill Renewable Natural Gas pipeline project in Shiloh, Ohio (above), which includes a 33.1-mile pipeline.

OPAL Fuels will remove carbon dioxide and other components from the methane, purifying the biogas to pipeline quality standards. In addition to supplying Aspire Energy's customers, the RNG will be dispensed into fueling stations to fuel compressed natural gas (CNG) vehicles also via OPAL Fuels. The Noble Road project will capture and transport quantities of renewable natural gas equivalent to 6.9 million gasoline gas equivalents (GGE) per year, enough to fuel 725 biofuel trucks.

"The Noble Road pipeline represents the first of many RNG projects under development that will deliver energy that contributes to a sustainable future," said Jeff Householder, CEO of Chesapeake Utilities. "Transporting RNG from the landfill through our pipeline system provides a path to markets that supports the economics of the biogas production and significantly reduces total carbon emissions." ■

Gas grills and other outdoor kitchen elements are popular features for outdoor rooms, offering a space for entertaining family and friends.

PHOTO COURTESY OF RH PETERSON CO.

An outside oasis

Multiple design options help homeowners create inviting backyard spaces.

By Tonya McMurray

The crackling of a fire. Grilled food served in the flicker of light from a gas lantern. Outdoor living spaces create an allure that draws people together.

"The outdoor room with fire features and an outdoor kitchen tends to promote family gatherings or gathering with your neighbors, something that with busy lifestyles doesn't happen quite as often as it should," said Jerry Scott, senior vice president of sales for RH Peterson Co. "It's those emotional ties – whether you're cooking or enjoying the warmth and ambiance of a fire – that an outdoor room gives you."

More and more homeowners are adding outdoor living spaces to their homes. It is a trend that began even before the pandemic, he said, but the pandemic accelerated it even more.

"The outdoor room continues to grow in popularity," Scott said. "It's now one of the top features that home buyers and home remodelers are looking for. People who are remaining home want to make their home more enjoyable."

"The outdoor room with fire features and an outdoor kitchen tends to promote family gatherings or gathering with your neighbors, something that with busy lifestyles doesn't happen quite as often as it should."

— Jerry Scott, senior vice president, sales, RH Peterson Co.

In a recent home trends study, more than 70% of architecture firms surveyed by the American Institute of Architecture (AIA) indicated significant growth in the popularity of outdoor living spaces. And AIA predicts these spaces will become the norm for newly built homes.

A recent survey by the National Kitchen & Bath Association (NKBA) found that 60% of homeowners with existing outdoor living spaces plan to upgrade those spaces for better functionality and improved aesthetics. NBKA found that outdoor kitchens were the most popular project, with 76% of respondents planning a new or upgraded

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Natural gas appliances combined with seating areas, gazebos and plants create a cozy and inviting outdoor space.

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outdoor cooking area. Other popular projects included patios and decks (54%) and screened porches or three-season rooms (31%).

Privacy is an increasing priority for many homeowners, according to the New Home Trends Institute. For many, this means a move away from front porches to private backyard spaces with sheltered side yards, decorative fencing to establish outdoor walls and covered patios and decks.

FROM SIMPLE TO ELABORATE

Outdoor living spaces can be as simple as upgrading the patio or deck to add a grill and fire feature, or they can cover much of the backyard with outdoor kitchens, seating areas for conversations, and outdoor fireplaces for both warmth and ambiance.

The National Association of Landscape Professionals (NALP) recommends homeowners designing an outdoor living space start by defining how they will use the space. Someone who plans to entertain or host dinner parties or barbecues may want to focus on the outdoor kitchen and dining spaces. If the space will primarily be used for family gatherings, a homeowner may want to include gathering areas with games, built-in sandboxes, water features or play stations for children. The homeowner looking to have a place to relax and unwind may want to focus on a fireplace or firepit and soft natural gas lighting to create a soothing mood.

For those on a budget, Better Homes & Gardens recommends identifying one key element – for example, a fire pit or a special piece of furniture – to invest in and then finishing the space with more budget-friendly items.

DESIGNING THE OUTDOOR ROOM

Once the use of the space is defined, homeowners can begin designing it to fit their needs.

Natural gas appliances offer homeowners a variety of options for the outdoor living space. Grills and side burners come in a variety of sizes and configurations to accommodate anything from small family barbecues to large gatherings. Fire pits, fireplaces and other fire features along with natural gas lanterns can help set an inviting and cozy mood in both small and large spaces.

In addition to natural gas features, consumers have a variety of design options. Lounge chairs, patio swings and chaise lounges provide comfortable seating areas. Carpets, artwork and throw pillows for furniture add decorative touches. Water features such as fountains or ponds can create a calming atmosphere while pools or hot tubs add a space for fun and relaxation.

Gazebos, archways or trellises can help divide the outdoor space to create distinctive areas for cooking, dining or relaxing. Different areas can also be set apart with stone walkways or through the creative placement of furniture and appliances. Homeowners can finish out the outdoor space with theaters and music systems. ■

"The outdoor room continues to grow in popularity. It's now one of the top features that home buyers and home remodelers are looking for."

— Scott

A NATURAL CHOICE: NATURAL GAS APPLIANCES OFFER ENVIRONMENTALLY FRIENDLY OPTIONS FOR OUTDOOR LIVING SPACES

Natural gas offers a comfortable, convenient, reliable and clean fuel for outdoor living spaces, providing consumers an affordable and environmentally friendly option for a variety of outdoor appliances. Consumers have many options for adding natural gas appliances to their outdoor living spaces.

One of the most popular elements of outdoor living spaces is the outdoor kitchen, said Jerry Scott, senior vice president of sales for RH Peterson Co. Outdoor kitchens can feature gas grills, side burners and island configurations.

Gas grills and side burners ignite quickly without the long warm-up time of charcoal or wood burning grills, and they offer more precise temperature controls to deliver more consistent cooking results. Unlike propane grills, gas grills offer a reliable fuel source that never runs out.

PHOTO COURTESY OF RH PETERSON CO.

Gas fire tables, fireplaces, firepits and other fire features create a cozy ambiance for outdoor spaces and are one of the most popular features for outdoor rooms.

Fire features — including fireplaces, dining tables with fire pits in the center, fire bowls and fire pits — are also popular for outdoor living spaces, Scott said. Natural gas fire features offer both convenience and safety. Because there are no sparks or hot embers, gas fire pits and fireplaces can be located almost anywhere — even close to patio furniture or on wood decks. There is no hassle of gathering or buying wood or trying to start the fire, and no waiting for wood to burn itself out since the fire can be turned off with the flick of a switch. Natural gas is also a less expensive option than purchasing firewood, Scott said.

Many homeowners also choose to add patio heaters, which can generally warm a 12- to 20-foot area and help take the chill out of early spring or crisp fall nights. Heaters can be permanently installed in-ground, deck mounted or hung from a roofline. Other heaters are freestanding and portable to allow for greater flexibility in use.

THE FINISHING TOUCH

Gas lighting can help pull the outdoor living space together, said Kimberly Mistal, outside sales representative for Legendary Lighting.

"It is a decorative touch and provides a soft glow to help set the ambiance," she said. "Multiple layers of light can really set the tone for the outdoor space."

Mistal said consumers can maximize the impact of lighting by creating layers of lighting with electric uplighting in trees complementing gas lanterns placed throughout the outdoor space.

Gas lanterns can be mounted to walls, posts or ceilings to allow for flexibility in placement throughout the yard.

"Putting a gas lantern over outdoor dining tables is a really nice touch," Mistal said. "Lanterns on posts around the pool or fire pit can frame the space."

Gas lanterns can also be equipped with an electronic switch that allows homeowners to turn them on or off or set the lights on a timer.

The variety of natural gas appliances offer versatility to homeowners to create an inviting and comfortable outdoor living space with a clean burning and cost-effective fuel source. ■

PHOTO COURTESY OF LEGENDARY LIGHTING

Gas lanterns add a finishing touch and soft glow to outdoor spaces, helping to set the mood for gatherings.

Deciduous trees around a home provide cooling shade during the summer while allowing the winter sun to add warmth.

PHOTO COURTESY OF LOVEYOURLANDSCAPE.ORG/JAMES MARTIN ASSOCIATES, CHICAGO, ILLINOIS

A green solution

Well-planned landscaping saves energy while creating beauty.

By Tonya McMurray

Most homeowners think of landscaping as a way of improving their home's curb appeal and aesthetics, but a well-designed landscape can also reduce energy costs and enhance sustainability.

Positioned correctly, trees, shrubs and vines can save up to 25% of the energy used in a typical home by providing shade and acting as a windbreak, according to the U.S. Department of Energy (DOE). Well-shaded homes often see a reduction of up to 40 degrees in attic temperatures, according to the National Association of Landscape Professionals (NALP).

"Positioned correctly, trees, shrubs and vines can save up to 25% of the energy used in a typical home by providing shade and acting as a windbreak."

— U.S. Department of Energy

To maximize the sun's warmth in the winter and take advantage of shade in the summer, the DOE recommends using deciduous trees. Deciduous trees with high spreading leave sand branches should be planted to the south to maximize roof shading during the summer. Trees with leaves and branches lower to the ground should be planted to the west where shade is needed from lower sun angles in the late afternoon.

Evergreen trees, on the other hand, can provide continuous shade and block heavy winds. The DOE recommends homeowners avoid planting evergreen trees too close to the south side of a home if they are hoping to use passive solar heat from the winter sun to increase the efficiency of natural gas heaters and boilers.

Windbreaks of trees and shrubs on the north and northwest side of a home can deflect winter winds away from buildings. Windbreaks can reduce wind speed as much as 30 times the windbreak's height, according to the DOE. Reducing wind speed will reduce the wind chill near the home, helping to maintain warmer and more consistent temperatures.

Shrubs, bushes and vines next to a home can help insulate the home in both summer and winter while low shrubs on the windward side of a home can help trap snow before it blows next to the home.

LUSH AND HEALTHY LAWNS

Well-maintained lawns and strategically placed plants will keep patios and yards cooler in the summer, helping homeowners enjoy their natural gas grills, fireplaces and other elements of outdoor living spaces. Lawns can be 31 degrees cooler than asphalt and 20 degrees cooler than bare soil, according to NALP.

Large bushes, rows of shrubs or hedges are effective ways to shade sidewalks and driveways while a trellis with a climbing vine can effectively shade a patio.

Careful planning can also help homeowners conserve water resources while still cultivating a healthy and attractive landscape. According to the Environmental Protection Agency (EPA), 30% of water used by U.S. households is devoted to outdoor water use, and in dry climates outdoor water use can be as high as 60% of a household's water use.

To conserve water, the EPA recommends homeowners choose native plants, which, once established, typically need little water beyond normal rainfall. Grouping plants according to water needs allows homeowners to maximize use of water resources.

The EPA also recommends maintaining healthy soils to minimize runoff and retain water and adding mulch around shrubs and garden plants to reduce evaporation and prevent erosion.

With careful planning, homeowners can design a landscape that looks good while saving energy and conserving water. ■

Shrubs and bushes can provide windbreaks to de5ect winter wind away from buildings, slowing wind speed and lowering wind chills near the home.

PHOTO COURTESY OF LOVEYOURLANDSCAPE.ORG/JAMES MARTIN ASSOCIATES, CHICAGO, ILLINOIS

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EARTH DAY'S FUTURE

All stakeholders in the natural gas industry are committed to driving down emissions even further. They are devising ways to make natural gas systems even more efficient. That includes the introduction of new fuels such as renewable natural gas (RNG) and blends of natural gas and hydrogen. (See related article on Page 03).

"The natural gas industry has a proven track record of reducing emissions," said Karen Harbert, president and CEO of AGA. "We will continue to collaborate with local policymakers, federal regulators, Congress and this administration to reduce greenhouse gas emissions through smart innovation, new and modernized infrastructure, and advanced technologies that maintain reliable, resilient and affordable energy service choices for consumers." ■

Be prepared for Mother Nature

Generators offer peace of mind and convenience.

By Monica Stavish Skaggs

You've had a long day, and it's time to kick back and enjoy some quiet time at home. Suddenly the lights go out, the refrigerator stops humming and all other appliances shut off. Stumbling through the dark aided only by a small light from your cell phone, you anxiously wonder how long it will be before power is restored.

For those who have installed a standby natural gas generator, this inconvenience is easily prevented. During a power outage, a generator can provide a seamless transfer of power within 10 seconds.

"Installing a home standby (HSB) generator gives homeowners peace of mind," said Keith Wasula, national account manager for Generac Power Systems Inc. "The uptick in severe storms and recent home-office transitions over the past year have put a greater spotlight on the concept of home as a 'sanctuary.'"

When a utility power outage occurs due to a storm, vehicle accident or peak demand shortage, a generator's automatic transfer switch senses utility power loss and begins the backup sequence within seconds, he said.

In a world of technology-driven convenience, maintaining power is vital. A generator will help keep the lights on and appliances working during an outage. For millions of home-based businesses, maintaining power can be invaluable. In more extreme situations, a generator will provide power during a hurricane or tornado and can protect the lives of children and the elderly. It can even mean the difference between life and death for those who rely on medical devices such as oxygen equipment to breathe.

"Whether it's a TV, tablet or computer that keeps them powered and ensures that work or schooling can still be done from home," said Melanie Tydrich, senior channel manager, residential and power products, Kohler Co. "All of this comfort, security and convenience adds up to priceless peace of mind for the homeowner."

Ross and Leila Hallan of Arlington, Texas, can attest to the peace of mind and convenience that a natural gas generator provides. The couple's home was among millions that lost power during the deadly, massive winter storm – billed 'Snowmageddon' – that struck Texas and neighboring states in February 2021.

Prolonged Arctic cold caused a huge electricity-generation failure that led to shortages of water, food and heat.

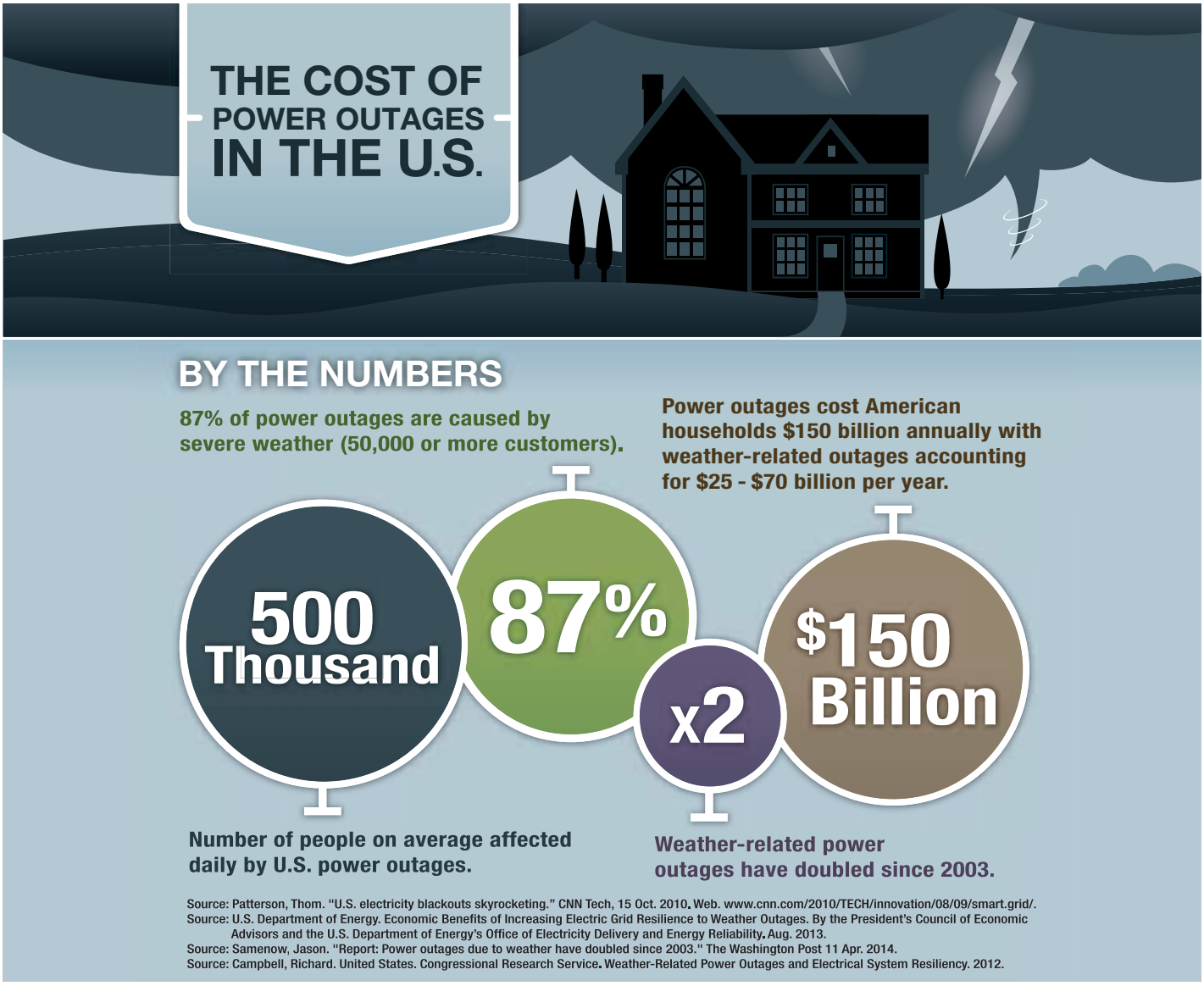
SEAMLESS TRANSITION

Leila Hallan was returning from a brief stay at the hospital that day when the power went out and stayed off for about 12 hours. The couple was concerned about the heat being off and food in the refrigerator spoiling.

"I called an installation company about getting a generator and they told me they had received 1,500 calls," Ross Hallan said. Since

PHOTO COURTESY OF GENERAC POWER SYSTEMS INC.

An automatic home standby generator delivers power directly to a home's electrical system, backing up the entire home or just the most essential items.



INFOGRAPHIC COURTESY OF KOHLER CO.

then, the couple have installed a Generac Guardian 22-kilowatt (kW) home backup generator, which is wired into their garage's main breaker panel. The natural gas generator is securely bolted outside onto a concrete foundation beside the house.

"The generator has come on two or three times since then," he said. "The power fails and, literally, five seconds later, you hear a click, and the power is restored. It's instant, with no flicker. All you hear outside is the generator humming away. There's no interruption. It's sort of reassuring."

Added Leila Hallan: "The only reason we know it comes on is when we hear it outside. You wouldn't know it's on. It's no noisier than an air conditioner; it just has a different tone. And, it is seamless. When the power comes back on, the generator automatically shuts off."

Backup generators can also protect the home from damages and expensive repairs after a power outage, Tydrich said. "Water damage from frozen pipes, mold issues from failed air conditioning and flood remediation from failed sump pumps are just a few of the outage-related costs that can add up fast."

Generators can be sized and equipped to handle specific loads including heating, ventilation and air conditioning systems or an entire home. Each situation is different, and homeowners should consider their budget, use and criticality of specific systems or appliances.

A wide range of natural gas generators is available. For example,

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"Installing a home standby (HSB) generator gives homeowners peace of mind. The uptick in severe storms and recent home-office transitions over the past year have put a greater spotlight on the concept of home as a 'sanctuary.'"

— Keith Wasula, national account manager, Generac Power Systems Inc.

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Generac's Guardian 22kW air-cooled system and its 24kW machine are considered whole-home generators, capable of backing up the average American home. The Generac PowerPact 7.5 kW system can handle essentials such as lights, furnaces and refrigerators.

"Depending on the region, fuel type availability at the home – natural gas or liquid propane – and also potential code upgrades to a home's circuit panel, a typical turnkey home standby installation can run between $8,500 and $15,000," Wasula said.

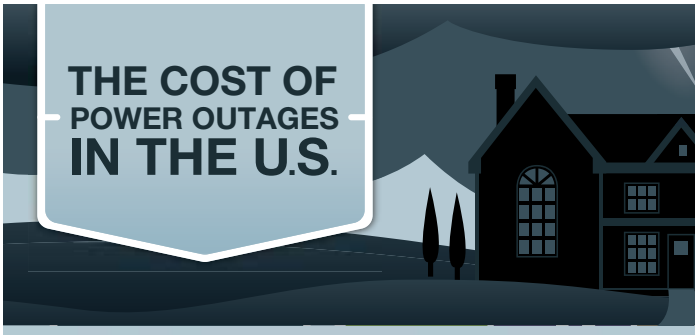
Natural gas generators are permanently installed. They operate off the home's utility gas or propane tank and are hard-wired into the electrical system via an automatic transfer switch. Because they are a permanent fixture, they can add resale value to the residence.

As far as maintenance, Wasula said a Generac generator will automatically be scheduled to exercise, or run, weekly for a few minutes to keep the unit active. At that time, it will not transfer a power load. An annual maintenance is required to maintain the warranty.

Before investing in a generator, homeowners should do their research. One place to start is to contact the local electric company and/or natural gas provider. In addition, Generac offers a direct-to-utility program through its Generac Grid Services division and Kohler provides additional information about generators and dealers. ■

PHOTO COURTESY OF KOHLER CO.

Never lose power during an outage with a natural gas-fired generator.



INFOGRAPHIC COURTESY OF KOHLER CO.

THE POTENTIAL COST TO HOMEOWNERS

$10,000
Burst or Frozen Pipes

$21,000
Flooded Basement

$500-$30,000
Mold Removal

$250-$500
Food Loss

$110/Night
Alternative Shelter

Source: Michigan Fire Claims, Inc.; Auburn Hills Michigan
Source: FloodSmart.gov (A two-inch flood in a 2,000 sq. ft. home)
Source: MoldRemediationCostGuide.com
Source: Carrns, Ann. "Hurricane Damage Questions, Part 2: Flooding and Food." The New York Times, 31 Aug. 2011. Web. http://nyti.ms/1kRyv2z.
Source: Hotels.com® Hotel Price Index (HPI®)

The chill is gone

There are benefits to heating pools with natural gas.

By Monica Stavish Skaggs

Ahhhh… There's nothing like slowly easing into the comfort of a heated swimming pool. With a natural gas pool heater, a pool's desired temperature can be maintained — providing year-round comfort no matter the climate or outdoor temperature.

A heated pool provides effective relaxation to swimmers and therapeutic benefits to physical therapy patients any time of year, whether in Miami, Florida, or Minneapolis, Minnesota. Even on days when outdoor temperatures are warm, a heater ensures that the water isn't too chilly to enjoy.

Gas-fired heaters are the most popular way to heat a pool, according to the U.S. Department of Energy (DOE). Today's gas heaters are much more efficient and reliable than older models and heat the water faster than electric heaters. Information about a gas heater's efficiency is available to the consumer through the manufacturer or labeling on the side of the system.

Heaters that burn natural gas will hook up to a gas line provided by the local gas utility. The natural gas heater quickly warms the water to the desired temperature. A gas heater uses a pump to circulate pool water, which passes through a filter to the heater. Heat is generated by gas burning in the heater's combustion chamber and then the water is returned to the pool.

Since gas pool heaters reliably maintain desired temperatures in various weather conditions and climates, they're a plus on those colder days. They operate for less time than electric models, saving wear and tear on equipment. Because of how quickly gas heaters heat a pool they are useful for heating on an as-needed basis.

Consumers should take into account several factors when installing a gas pool heater, DOE advises. In addition to pool size, it's good to consider the heater's size, efficiency and cost.

The first step is to contact a trained pool professional to determine what size pool heater will work best based on pool size. A heater should be based on two factors: Surface area of the pool and the difference between the pool's water temperature and average air temperatures. Humidity, wind and nighttime temperatures should also be considered.

"Gas-fired heaters are the most popular way to heat a pool."

— U.S. Department of Energy

British thermal units (Btus) are used to rate gas pool heaters, with outputs ranging from 75,000 Btu to 450,000 Btu. Gas heaters range in price between $1,000 to $5,000, depending on the unit's size and brand.

It's also important to have the pool heater installed by a qualified pool professional. DOE also advises homeowners to contact a professional for complex maintenance issues or repairs to the system. Regular maintenance is essential to keep the heater working efficiently.

With proper installation and routine maintenance, a gas pool heater will operate five or more years, according to DOE. Owners should carefully read the manual, heed maintenance recommendations and schedule annual tune-ups. ■

PHOTO COURTESY OF COPPER LEAF

Today's gas heaters are much more efficient and reliable than older models and heat the water faster than electric heaters.

PORTERHOUSE WITH SUMMER AU POIVRE SAUCE

2–4 servings

INGREDIENTS

2 tablespoons drained pickled green peppercorns, plus more for serving
½ cup (packed) basil leaves
½ cup (packed) mint leaves
½ cup extra-virgin olive oil
Kosher salt
1 2-pound porterhouse steak (about 2" thick), preferably prime or as well-marbled as you can find

DIRECTIONS

1. Prepare a grill for high indirect heat (for a gas grill, leave one or two burners off); oil grate with vegetable oil. Coarsely chop 2 tablespoons peppercorns, then coarsely chop basil and mint right on top of peppercorns. Transfer to a small bowl and mix in olive oil; season with salt. Coarsely chop a few more peppercorns and set aside for serving.
2. Season steak generously with salt. Grill over direct heat, keeping tenderloin (the smaller side) away from the most intense heat and turning steak about every minute or so to control flare-ups and ensure even browning, until deeply browned on all sides (including standing it on its side with tongs to render and brown fat around edges), 6–8 minutes.
3. Move steak over indirect heat (still positioning tenderloin side away from the heat) and grill, turning every 1–2 minutes and moving closer to or farther away from heat as needed to build even color, until an instant-read thermometer inserted into the thickest part of steak registers 120° for medium-rare, 10–12 minutes. Transfer to a wire rack set over a rimmed baking sheet and let rest 15–30 minutes.

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4. Transfer to a cutting board and cut meat away from each side of the bone, then slice crosswise. Serve topped with sauce and reserved peppercorns.

SOURCE: BON APPÉTIT

BEEF, ZUCCHINI AND SPINACH ENCHILADAS

INGREDIENTS

1 tablespoon olive oil
1 small onion, diced
1 pound lean ground beef
1 large zucchini, diced
2 cups baby spinach, finely chopped
2 tablespoons chili powder
2 teaspoons cumin
4 ounces low fat cream cheese, softened
2 tablespoons sour cream
1 tablespoon chopped cilantro
2 scallions, sliced thinly (white and light green parts only)
2 cloves garlic, minced
2 teaspoons up to 1 tablespoon chipotle chilis in adobo sauce, depending on your desired spice level
1 14.5 ounce can tomato sauce
¾ cup chicken broth
salt and pepper to taste
6 whole wheat flour tortillas, taco size
1½ cup grated pepper jack cheese, divided
extra cilantro and sour cream for garnish

DIRECTIONS

1. Preheat oven to 350 degrees and grease a 9x13 glass baking dish with vegetable oil or cooking spray.
1. In a large, heavy-bottomed sauté pan with high sides, heat olive oil over medium heat. Add the onion and sauté 2 minutes until translucent.
1. Add the ground beef and cook until brown and crumbled, about 5 to 7 minutes. Stir in the zucchini and cook another 3 minutes or so until just starting to brown; toss in the spinach and cook until wilted. Season with 1 tablespoon chili powder and 1 teaspoon cumin.
1. Remove beef mixture from the pan into a large bowl, straining out any excess water or fat. Immediately add the cream cheese, sour cream, cilantro and 1/2 cup grated pepper jack and stir until melted and combined.
1. Wipe the pan clean with a paper towel then add the garlic and sauté for 1 minute over medium-low heat, stirring constantly. Add the chipotle chilis in adobo and stir just until fragrant. Add the tomato sauce, chicken broth, remaining 1 tablespoon chili powder and remaining 1 teaspoon cumin. Cook, stirring occasionally for 5 to 7 minutes until slightly thickened. Remove from the heat.
1. Spread 1/2 cup of the enchilada sauce on the bottom of the pan. Prepare the enchiladas by spooning a couple of heaping tablespoons of the filling into each tortilla. Wrap tightly, being sure to keep most of the filling inside. Place seam-side down in the baking dish. Repeat with remaining tortillas. Pour the rest of the sauce over the top, spreading evenly. Sprinkle the remaining cup of cheese on top. Bake for 25 minutes until the cheese is melted, the sauce is bubbling and the edges are just starting to brown.
1. Remove from the oven and allow to sit for 5 minutes. Sprinkle over extra cilantro and serve immediately with generous dollops of sour cream on top.

SOURCE: GAS STOVE GIRL

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