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**Natural Gas:
Always in Style**

Natural Gas on the Move

Powering thousands of the nation's vehicles, natural gas is a cleaner alternative to gasoline and diesel.

By Drew Robb

In many ways, the 20th century was defined by gasoline and the automobile. The entire landscape of the planet changed to accommodate cars. For example, according to the American Road and Transportation Association, roads now cover 17,947 square miles of American land with an estimated 253 million passenger vehicles (reported by IHS Markit) registered in the United States.

But the 21st century is ushering in the decline of gasoline-powered transportation. The number of natural gas vehicles (NGVs) is rising sharply. As of the end of 2017, NGV America estimates that there are about 175,000 NGVs in operation in the U.S. based on a review of the latest figures available from the U.S. Energy Information Agency (EIA). Worldwide, there are around 15.2 million NGVs in operation.

The advantages of natural gas as a transportation fuel include its domestic availability, widespread distribution infrastructure, and greatly reduced greenhouse gas emissions compared to conventional gasoline and diesel fuels.

According to NGV America, the country's station count has grown dramatically in the last three years. There are now nearly 2,000 natural gas refueling stations operating in the U.S. Further investments are being made to increase capacity and create a traditional fueling experience for the customer.

With this network expanding rapidly, it is only a matter of time before NGVs for consumers will become more common sightings on the nation's roadways.

Until then, trucks, vans and buses lead the way in compressed natural gas (CNG)-powered vehicles.

"Most of the interest in natural gas as a fuel tends to be in high-fuel-use vehicles due to the economic and emission reduction benefits of operating them on cleaner, more economical natural gas," said Daniel Gage, president, NGV America.

BUSES A POPULAR CHOICE FOR NGVS

Transit buses, for example, burn a lot of fuel because they operate for long periods of time each day and drive more than 40,000 miles in a year. It makes sense to switch over to natural gas where the difference in fuel price can add up to big savings.

In this market, there is also interest in driving down urban emissions that contribute to pollution and health issues. New natural gas buses are powered by extremely clean, low-emission engines that are 90 percent cleaner than the newest diesel buses and much more cost effective than other alternative fuel options, according to Gage.

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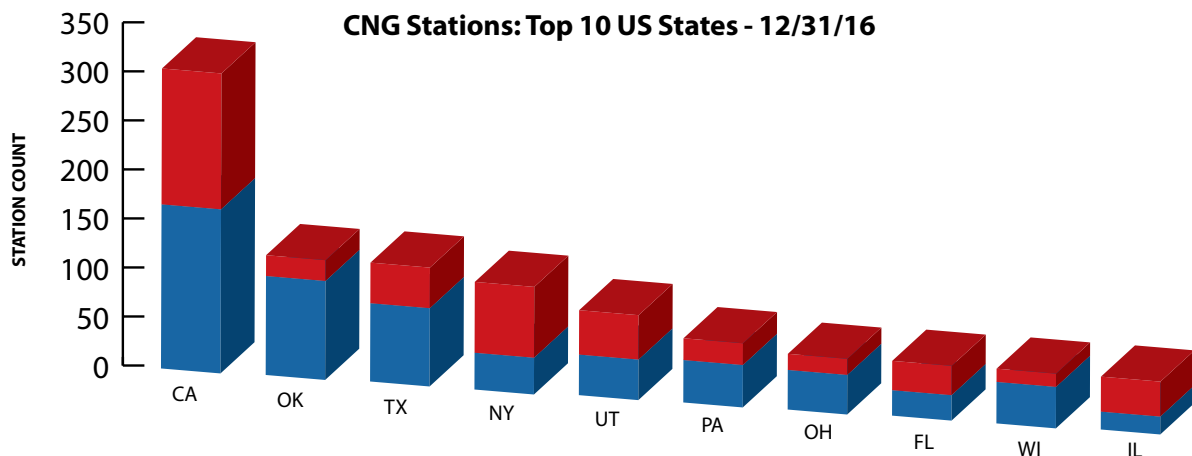


CHART COURTESY OF NGV AMERICA



Tap, Tap

Shale gas means more domestic and abundant power for the USA.

By Drew Robb

The USA once relied on large quantities of coal and oil for electric generation and home heating. However, rising awareness of the need for clean energy has created a growing demand for natural gas. Power stations now use clean-burning gas. And millions of homeowners around the nation switched to natural gas for their home-heating, cooking and cooking and other needs.

But there was a problem — to meet soaring demand, the country relied on imports from overseas. The added costs were relegated to the consumer. The environment suffered as coal and oil continued to be used in many regions.

Everything changed about a decade ago with the discovery of cost-effective techniques for the extraction of natural gas from vast shale deposits underlying many parts of the country. Known as “shale gas,” this resource has revolutionized the North American energy sector and

“By untapping shale gas, huge supplies of natural gas can now be provided at a very low cost to the consumer. Shale gas is a real economic windfall for the USA. It saves the consumer a lot of money on utility bills and provides cheap power to American industry.”

— Mark Axford, Axford Consulting

provided a boost to the U.S. economy by delivering an abundance of clean power from domestic sources at rock-bottom prices.

“By untapping shale gas, huge supplies of natural gas can now be provided at a very low cost to the consumer,” said Mark Axford, principal at Houston, Texas-based energy consultancy Axford Consulting. “Shale gas is a real economic windfall for the USA. It saves the consumer a lot of money on utility bills and provides cheap power to American industry.”

AN ENDLESS SUPPLY OF CLEAN ENERGY

The U.S. Energy Information Administration (EIA) noted the nation produced 1,576 million cubic feet of natural gas in January 2007. Ten years later that number had risen to 2,329 million cubic feet. That’s an increase of 50 percent, a number that is projected to grow as more shale gas resources are discovered and made available for energy use by homes and businesses. During that same period, imports of natural gas dropped by 50 percent.

“Importation of liquefied natural gas (LNG) from overseas have all but disappeared,” Axford said. “There is so much domestic natural gas available that the U.S. is now exporting LNG for the first time.”

In addition, the U.S. has become a major exporter of natural gas to Mexico. Indeed, America’s neighbor to the south is in the midst of its own energy revolution, switching over from burning oil and coal to clean natural gas. It is expanding its pipeline network to be able to import

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ABUNDANTLY CLEAR: POWER FROM NATURAL GAS IS MORE EFFICIENT THAN IT IS FROM ELECTRICITY.
BY DREW ROBB

Did you know that natural gas is so energy efficient that it is being used more often in power plants to generate electricity? The fact is, the direct use of natural gas is three times more efficient than using electricity to run home appliances.

How can that be? The U.S. Energy Information Administration (EIA)'s Johnathan Cogan said the difference is based on a calculation of getting energy to the home. In the case of electricity, there is a lot of energy consumed in mining coal out of the ground, burning it in a power plant to turn it into electricity, sending it long distances along transmission lines and, finally, delivering it to homes to heat them or run their appliances.

In the case of natural gas, on the other hand, very little energy is consumed in transmitting it along pipelines and into homes. When you turn on the appliance, natural gas

is transformed into energy immediately. By taking all the energy use into account, the EIA has calculated that natural gas is more than three times more efficient as a source of energy for the home and running its appliances.

But, when you compare appliances in a store, you don't see this difference in efficiency. Why? When you look at appliance efficiencies in the store, you are only looking at the efficiency for the appliance itself; this figure does not take into account the process of getting the energy to your home. That's why it can mistakenly appear that there is little difference in energy efficiency between them in some cases.

However, when all aspects of the energy production process are taken into account, it becomes abundantly clear that natural gas appliances are by far the winner! Not only that, they are cleaner, better for the environment and are cheaper to run than their electric counterparts.



SOURCE: AMERICAN GAS ASSOCIATION

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even more natural gas from Texas. This puts the American economy on an even stronger footing.

The latest EIA Short-Term Energy Outlook forecasts that domestic natural gas production will reach annual record levels in 2018 and 2019. This growth stems from the discovery of new shale formations across the country, as innovations allow for the development of vast, previously unreachable oil and natural gas resources. This represents a leap of 9.3 percent from 2017 to 2018, and a 3.2 percent increase from 2018 to 2019. The more natural gas resources that are discovered, the better it is for the country, for local communities, the environment and the consumer.

“Natural gas development is a major economic driver, especially for local communities,” said Matt Mandel, senior consultant, energy and natural resources for FTI Consulting Inc. “In addition to creating production jobs and boosting investment spending, shale development has also been found to increase wages and decrease a region’s overall unemployment.”

A study by the Business Council for Sustainable Energy found that American consumers spent less on energy due to shale natural gas production. This has lowered average electricity prices by 3 percent nationally, with states such as Texas, New York and Florida experiencing a 10 percent drop. This also translates into savings in the home, according to research by the University of Pennsylvania. Following a 2,800 percent increase in natural gas production in that state between 2007 and 2016, gas bills dropped 40 percent and average utility bills declined by 75 percent. While not every state has gained the same benefits as Pennsylvania, EIA analysis finds an average annual energy cost drop of 14 percent per household in the U.S.

Local communities rank high among the beneficiaries. A University of Texas at San Antonio study found that oil and gas production in the

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Eagle Ford Shale region of Texas provided more than \$4.4 billion to local and state governments. This added up to \$87 billion in economic output and supported almost 155,000 jobs in one year.

“Over the next year, the U.S. is positioned to continue its ascent as a global oil- and gas-producing superpower,” Mandel said.

ENVIRONMENTAL IMPACT

The fuel used in American power plants can either be coal, diesel oil or natural gas. Axford said emissions are double for diesel compared to natural gas. But when compared to coal, natural gas does even better. A state-of-the-art coal plant with all the latest emission control and pollution reduction technologies produces far more emissions than a similarly sized natural gas power plant.

- 2,100 tons of nitrous oxide per year from coal versus 380 tons for natural gas (18 percent)
- 2,500 tons of sulfur dioxide per year from coal versus zero for natural gas (0 percent)

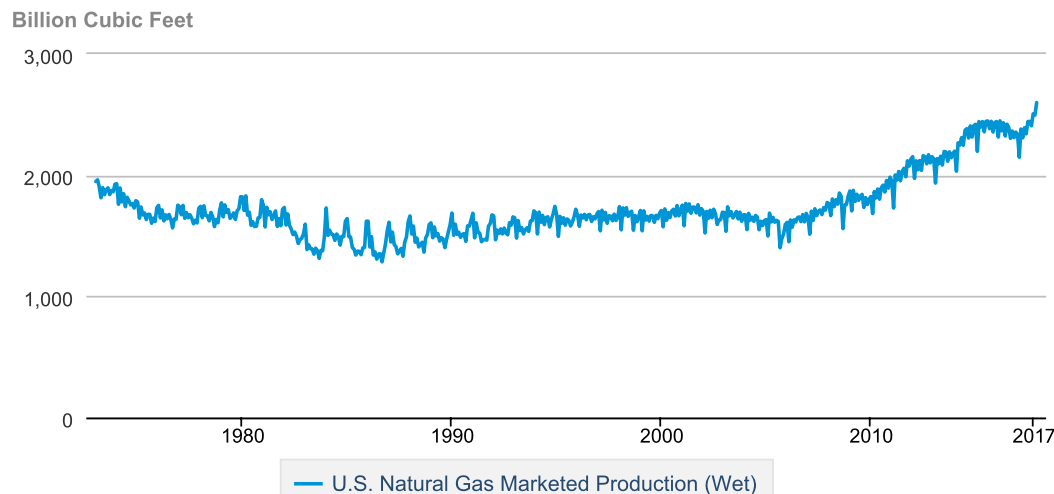
- 6.3 million tons of carbon monoxide per year from coal versus 2 million for natural gas (31 percent)
- 400 tons of additional harmful particles per year versus virtually none for a natural gas (0 percent)

“Natural gas is good for the environment,” noted Axford. “A modern natural gas plant is also 50 percent more efficient at producing electricity compared to the latest coal plants.”

In short, natural gas is an environmentally friendly and energy-efficient fuel. That’s good news for consumers, especially when monthly bills come rolling in. And, it’s good news for North American industry. ■

SOURCE: U.S. ENERGY INFORMATION ADMINISTRATION

U.S. Natural Gas Marketed Production (Wet)



(continued from page 03)

“Buses have long been a popular choice for natural gas because of concerns about pollution in urban areas where buses typically operate,” he said. “Since the early 1990s, natural gas has been a much cleaner option for transit agencies looking to reduce their emissions and their exposure to harmful pollutants.”

Natural gas is also a good fit for transit agencies, as they generally are centrally fueled. This means they are refueled where they are garaged. This has allowed natural gas providers to build stations at transit bus depots to refuel the buses when they return to base.

Case in point: Los Angeles County Metropolitan Transportation Authority (Metro) boasts the largest natural gas bus fleet in the nation. As a sign of its success with NGVs, it is adding another 295 CNG buses. The contract includes an option for the purchase of 305 additional vehicles.

“We take our responsibility to both the environment and taxpayers very seriously,” said Cris Liban, Los Angeles County’s Metro executive officer for environment and sustainability. “By using renewable natural gas, as well as other technologies, we will continue to exceed our environmental goals and ensure we provide the best transportation service to our customers and region.”

LONG-HAUL SAVINGS FOR TRUCK FLEETS

These same benefits hold true for truck fleets, many of which operate long hours and accumulate high mileage each year. As well as saving on fuel expenses, truck companies are increasingly concerned about demonstrating their corporate responsibility through the use of the cleanest available technology.

“There are few applications for which natural gas is not a good option for truck fleets,” Gage said. “Today’s NGV trucks are capable of going 500-plus miles on a single fueling.”

REFUSE READY

But the biggest market for NGVs is probably refuse. In 2017, for example, Waste Management Inc. deployed its 6,000th natural gas truck and opened its 100th natural gas fueling station. Others in the refuse industry are following this example and deploying cleaner-burning natural gas trucks.

Further opportunities for natural gas include light duty trucks, SUVs and vans, which account for a significant share of the vehicles

sold in the U.S. They are also serious gas guzzlers.

“Natural gas is a great option in these cases for persons who want vehicles that are larger and that require extended range,” Gage said. “Electric vehicles are not a good fit for most of these types of vehicles.”

ECONOMICS

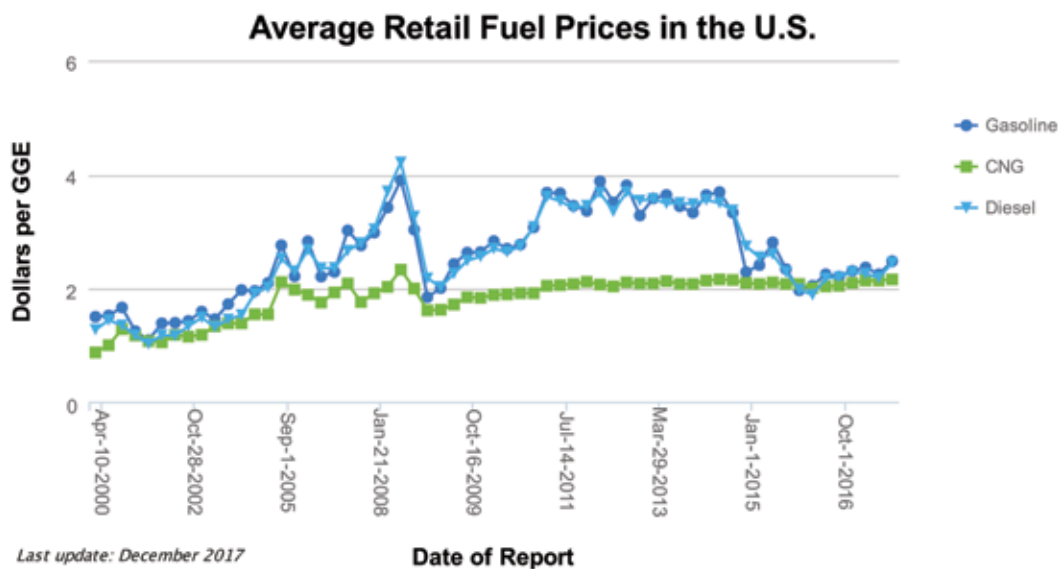
Buses and commercial trucks have traditionally operated on diesel fuel. Before the 2015 decline in petroleum prices, natural gas was selling for \$1.50 to \$2.00 less than diesel per gallon in some areas of the country. For a year or two following the rapid decline in oil prices, there was little monetary advantage between natural gas and diesel. However, petroleum prices have risen once again and are expected to remain higher.

“Natural gas tends to be less expensive than gasoline or diesel, and its pricing tends to be much less variable over time,” said Dennis Smith, the National Clean Cities director for the U.S. Department of Energy.

The national average price for gasoline hovers between \$2.56 and \$3.00 a gallon, up from the previous year, according to EIA. In California, a big market for natural gas vehicles, diesel fuel is selling at more than \$3.65 a gallon. According to the U.S. Department of Energy’s March 2018 report, diesel is selling for a national average of \$2.92 per gallon while the average price in the country for for CNG is \$2.17.

“The price spread likely has only grown since then as diesel prices have continued to climb,” Gage said.

Over time, CNG-fueled passenger cars will fill the highways of America. The availability of abundant, inexpensive and domestically produced natural gas will see its usage grow sharply as a much cleaner alternative to conventional gasoline and diesel vehicles. ■



Since 2000, CNG has been cheaper than diesel fuel for 99 percent of the time. Further, diesel and gasoline prices are volatile whereas CNG rates are stable.

SOURCE: CLEAN CITIES ALTERNATIVE FUEL PRICE REPORTS

Outdoor Oasis

Natural gas fuels outdoor enjoyment for every backyard personality.

By Tonya McMurray

Are you a **Backyard Beginner**, content to stick to the basics of grilling? Or have you progressed to **Outdoor Enthusiast**, ready to expand your outdoor living space? Perhaps you're a **Patio Pro** known for your entertaining prowess. Or maybe you're a **Backyard Beast** with the ultimate backyard setup.

The Hearth, Patio, and Barbecue Association (HPBA) identifies the above four backyard personalities based on a seven-question quiz (www.hpba.org/Product-Info/Barbecue-Outdoor-Living/Your-Backyard-Personality-Quiz) that also provides tips on the next steps for getting the most out of your outdoor living space.

Regardless of which backyard personality type fits you best, natural gas is the ideal fuel for outdoor living spaces, providing the comfort and convenience of a reliable, clean fuel source. Natural gas is both affordable and environmentally friendly.

DESIGNING YOUR OUTDOOR SPACE

Backyard upgrades can be as simple as adding a gas grill or a firepit. Or, you can create your own outdoor room — converting your patio into a family oasis or the ultimate man (or woman) cave.

An outdoor living space can become almost an extension of your





home with an outdoor kitchen, seating areas for relaxation and conversation, and outdoor fireplaces or firepits to add both warmth and ambiance. The different areas can be set apart with decorative stone walkways or through creative placement of furniture and appliances. Lounge chairs, patio swings and chaise lounges can provide comfortable seating areas.

“Making backyard upgrades can be simple and fun — whether it’s adding a few new tools for your barbecue or converting it into a full outdoor living room experience,” said Jack Goldman, president and CEO of HPBA. “The return on investment is not just added value for your home, but memories with your family, friends and neighbors that can last a lifetime.”

Perhaps that’s why a recent Houzz Inc. report indicates that 18 percent of homeowners plan a patio or landscape addition in the next two years.

ALWAYS-READY OUTDOOR GAS GRILLING

Grills are one of the most popular outdoor appliances. According to a 2017 consumer survey commissioned by HPBA, 70 percent of U.S. adults and 80 percent of Canadian adults own a grill or smoker. About 10 percent of grill owners have a complete outdoor kitchen, including a mini-fridge, outdoor sink, seating and entertainment systems.

And use of grills is expanding beyond the summer months, with the HPBA survey indicating that 29 percent of consumers plan to use their grill or smoker more often in the coming year. HPBA reports that gas

grills are the most popular with 64 percent of consumers choosing gas over other fuel sources.

Whether modestly sized and freestanding or large permanent structures, natural gas grills provide an always-ready cooking appliance. With more precise temperature controls than propane or charcoal grills, natural gas grills help produce more consistent cooking results and take the guess work out of outdoor cooking.

Gas grills ignite quickly without the long warmup time required for charcoal grills, and the fuel supply is always available. Unlike propane grills, there’s no chance of a tank being low or running out during a cookout. Because natural gas grills connect directly to your home’s existing natural gas line, the fuel is always available and ready to go.

TURN UP THE HEAT

Adding fireplaces and heaters to outdoor spaces is a growing trend, with a third of those renovating backyard areas opting for an outdoor heating source, according to a 2017 U.S. Houzz Landscape Trends Study.

Just as an indoor fireplace serves as both décor and heat source, outdoor fireplaces provide warmth, add flair and set the mood for outdoor living spaces. Outdoor fireplaces can be surrounded by granite, tile, stone or other material to fit the style of your home and landscaping.

Some homeowners opt for fire pits to provide outdoor ambiance. Offering a focal point for outdoor gatherings, fire pits are an ideal place to gather around for casual conversation, roasting marshmallows or just enjoying the outdoors. Some fire pits even feature grills for cooking.

While the heat doesn’t always radiate as far as a patio heater, fireplaces and fire pits combine the timeless appeal of a crackling fire with the convenience and safety of the latest natural gas technology. Because

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there are no sparks or hot embers flying about, gas fire pits and fireplaces are safer and can be located almost anywhere – even close to patio furniture or wood decks.

There is also no hassle of gathering or buying wood or trying to start the fire. And, no need to clean out ashes after enjoying a cozy evening fire.

A PLACE FOR ENTERTAINING

Many outdoor living spaces feature a sitting area for entertaining or just relaxing. If you're looking to increase the number of months you're able to enjoy your outdoor space, outdoor heaters are essential. Patio

heaters can generally warm a 12- to 20-foot area, helping to take the chill out of early spring or crisp fall nights. They are most effective when outdoor temperatures are between 40 and 60 degrees Fahrenheit and can be placed almost anywhere.

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.

Gas-fueled lights and tiki torches add the finishing touches to outdoor living spaces. Whether enclosed or with open flames, outdoor lighting fueled by natural gas offers a reliable light source, even during a power outage. And, while bugs flock to electric lighting, natural gas lighting does not tend to attract insects.

BY DESIGN: SMART LANDSCAPING CAN CONSERVE BOTH ENERGY AND WATER. BY TONYA MCMURRAY

Designing an outdoor space and house with natural gas appliances are just the beginning of creating an energy-efficient home.

Landscaping can also reduce energy costs. According to the U.S. Department of Energy (DOE), a well-designed landscape can save enough energy to pay for itself in less than eight years, further enhancing the energy savings achieved by the use of natural gas in a home.

PLANT TREES

Using trees to shade roofs and windows during the summer is the most common way of landscaping for energy conservation, said Ryan Meres, program director for the Residential Energy Services Network (RESNET).

Just as parks and wooded areas are cooler than city streets, carefully placed trees impact home temperatures. Studies conducted by the Lawrence Berkeley Laboratory found summer daytime air temperatures were 3 degrees to 6 degrees cooler in tree-shaded neighborhoods than in treeless areas.

The DOE estimates that well-placed trees can save up to 25 percent of the energy a typical household uses for heating and cooling. The department's computer models indicate that proper placement of only three trees can save an average household between \$100 and \$250 annually.

For areas with a lot of sun exposure, deciduous trees planted around the sides of the home can create shade for summertime cooling. And, in the winter, when those trees shed their leaves, they allow sunlight to reach the home for additional warming. Planting trees on either side of

the house can help direct cooling winds toward the home during the summer.

Trees and other landscaping features, including shrubs or fences, can be used as windbreaks to shield a home from winter winds. A South Dakota study found that windbreaks can reduce fuel consumption by an average of 40 percent.

Other energy-saving tips from the DOE include:

- Use vines and climbing plants like Boston Ivy or Clematis to help create shade.
- Improve the efficiency of your air conditioner by planting shrubs about 3 feet away to maintain good airflow while providing shade for the unit.
- Use shrubs to help trap snow and reduce drifts on the windiest side of your home.

LOCATION, LOCATION, LOCATION

"The impact of landscaping on energy use is highly dependent on the orientation of the house, the area of windows, walls or roof being shaded, and the climate where the home is located," Meres said.

The DOE divides the United States into four climate regions with landscaping strategies for each:

Temperate region: Maximize warming of sun in the winter and shade in the summer. Deflect winter winds from buildings, especially on the north and northwest side of the house. Tunnel summer breezes toward the home.

Hot-Arid region: Provide shade for roofs, walls and windows. Allow summer winds to access naturally-cooled homes while blocking winds from air-conditioned homes.

From casual tiki torches to elegant brass or copper lamps, natural gas lighting can complement any outdoor space. Lights can be mounted on exterior walls, porch ceilings or on lamp posts. Light sensors and timers can help reduce fuel use by ensuring that lights are only on when you need them.

Regardless of your backyard personality, you can create outdoor living spaces that enhance the enjoyment of your home. Whether you have a small patio with a grill or a larger outdoor living space, you can count on natural gas to bring comfort, convenience and ambiance to all your outdoor gatherings. ■



A fully equipped outdoor kitchen with prep space, cabinets and a seating area offers the ideal entertainment venue.

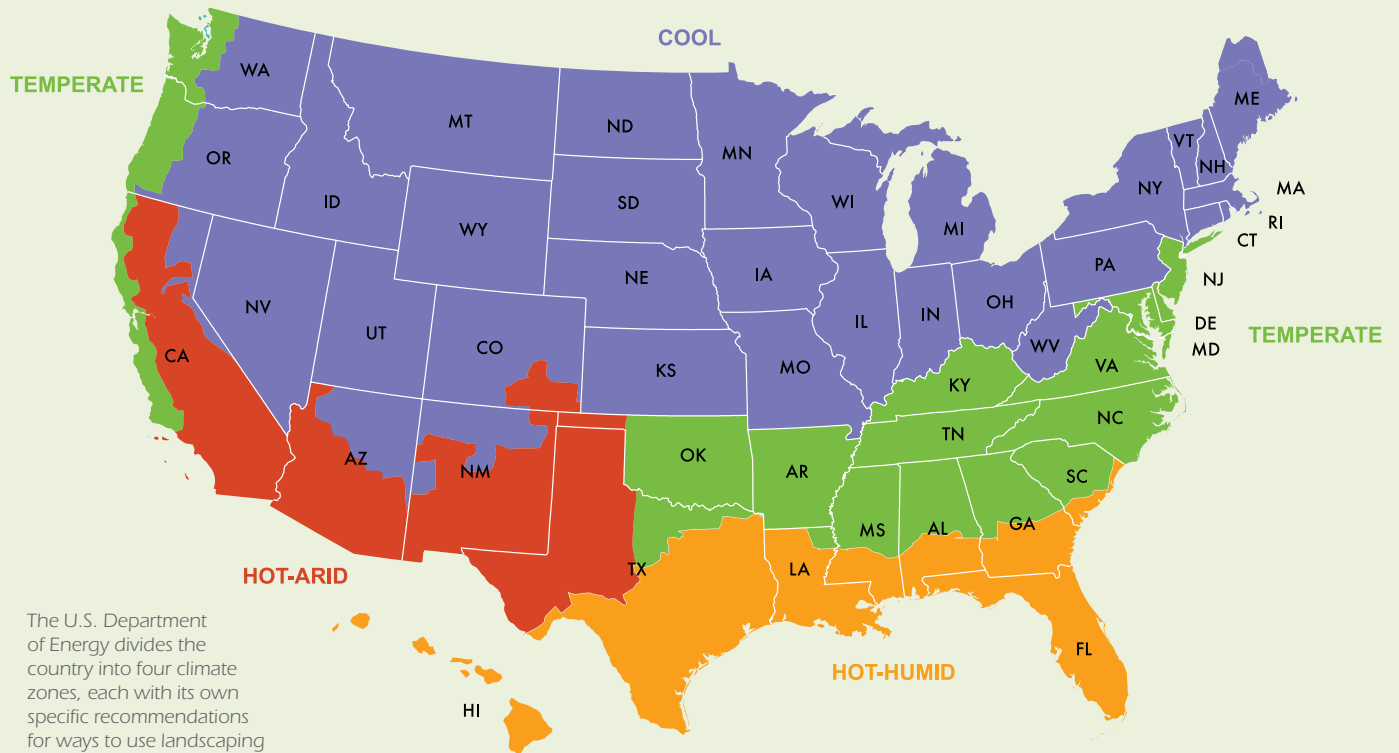
PHOTO COURTESY OF NAPOLEON PRODUCTS

Hot-Humid region: Maximize summer shade with trees that still allow low-angle winter sun to reach the home. Channel summer breezes toward the home.

Cool region: Use windbreaks to protect the home from cold winds. Shade south and west windows and walls from direct summer sun while allowing the winter sun to reach south-facing windows.

Your home's microclimate — the climate immediately surrounding your home — is also important. For example, a home in a sunny, southern area will have a warm microclimate, even in the cold, northeastern cool region.

A well-designed landscape plan, with careful attention to climate, helps to maximize energy savings.



The U.S. Department of Energy divides the country into four climate zones, each with its own specific recommendations for ways to use landscaping to increase energy efficiency.

IMAGE COURTESY OF THE U.S. DEPARTMENT OF ENERGY

A Style and Size for Every Space

Natural gas offers cost-effective heating throughout the house.

By Tonya McMurray

On chilly spring mornings, there's nothing like a warm and cozy home. Achieving a comfortable temperature in a cost-effective, earth-friendly way can make even the nippiest day more bearable.

Space heaters can offer a cost-effective solution for heating a small space or supplementing inadequate heating in certain areas of your home, according to the U.S. Department of Energy (DOE). Space heaters come in all sizes and styles to fit almost any décor or heating need.

GAS-FIRED HEAT

Natural gas provides the ideal fuel source for space heating. It is a more economic heat source than electricity, propane or wood, and it provides more precise temperature control.

Gas heaters do not require electricity, making them a valuable heat source during a power outage. But perhaps most important, natural gas provides a more effective heat.

"Natural gas makes you feel warmer, and it's instantaneous," said Leo Brown, director of sales for Cozy Heating Systems LLC. "With gas

heat, you feel the heat if you're anywhere close to it. A gas heater will heat faster than other delivery systems."

ALL SIZES AND TYPES

Space heaters come in sizes ranging from smaller 10,000 or 15,000 British thermal units (BTUs) up to larger 65,000 BTUs. Brown said the average space heater is probably 30,000 to 40,000 BTU, but size will depend on how the system is used.

Space heaters generally are intended to heat only the room in which they are placed. However, in warmer climates, a larger unit could serve as a home's sole heating source, Brown said.

"In places like the southwest or southern states where they don't have as cold a winter day and where it isn't cold for as long a period of time, a larger unit could be the heater for the house," he said. "Colder areas, such as northern states or Canada, need higher BTUs and need the primary heater to run for days on end, so space heaters are more supplemental."

Some small space heaters may be vent-free, but most use either conventional or direct venting. Most are mounted to either the floor or a wall.

Vent-free systems draw in room air to support combustion. With efficiency ratings of up to 99.9 percent, they release



PHOTO COURTESY OF COZY HEATING SYSTEMS LLC.

Wall-mounted heaters are easy to install and can be placed on any exterior wall since they don't require venting through a flue or chimney.

PHOTO COURTESY OF COZY HEATING SYSTEMS LLC.



Floor furnaces provide consistent heat through the natural convection, circulating warm air throughout the room.

"Natural gas makes you feel warmer, and it's instantaneous. With gas heat, you feel the heat if you're anywhere close to it. A gas heater will heat faster than other delivery systems."

— Leo Brown, Cozy Heating Systems LLC.



High efficiency wall furnaces can be mounted on an outside wall or an inside wall with a vent extension. Using a sealed-combustion chamber to draw in outside air, high efficiency heaters retain heat and help to maintain indoor air quality.

almost all the generated heat into the area to be heated. Used for supplemental heat only, vent-free units come with oxygen depletion sensors that automatically shut the unit down if there is an inadequate oxygen supply.

Direct-vent room heaters or wall furnaces can be installed on most exterior walls because they don't need a chimney and are self-contained, sealed-combustion heating appliances. Wall furnaces are generally less expensive than central furnaces and, because each heater has its own controls, can allow temperatures to be varied throughout the home.

High efficiency, direct-vent heaters contain a sealed-combustion chamber that draws air for burning from outside; it exhausts the combustion byproducts outdoors to keep indoor air fresh. Units often include blowers to expand the heated space.

Conventionally-vented heating systems use a chimney or flue to vent through the roof. These units are somewhat less efficient because the venting process allows a portion of the home's heat to escape up the chimney.

Freestanding gas stoves can add some of the ambiance of a fireplace while bringing additional warmth to a home. Freestanding stoves can be vented through an existing chimney or on an outside wall, and some are vent-free. Gas stoves come in a variety of styles and colors, allowing them to complement almost any room.

ASSESSING YOUR NEEDS

Deciding which heater is right for you depends on your needs and the size of the space you're heating, Brown said. The type of insulation in the space you are trying to heat is also important in deciding what size heater you need.

“Colder areas, such as northern states or Canada, need higher BTUs and need the primary heater to run for days on end, so space heaters are more supplemental.”

**— Leo Brown,
Cozy Heating Systems LLC.**

Cozy offers a BTU calculator (cozyheaters.com/btuh-calculator/) that provides a rough estimate based on the cubic footage and type of insulation in the space to be heated. A contractor can get even more specific about heating needs based on a more in-depth analysis.

Before you begin any renovation project, an important first step is to check local construction codes. These codes may restrict the use of certain types of heaters which will have an impact on your selection.

Regardless of the size or style you choose, a natural gas space heater will keep the chill out and the savings in while generating plenty of cozy warmth for your home. ■



Vented console heaters attach to an existing chimney or flue to vent exhaust. They provide reliable, consistent warmth in an energy efficient manner.

The Kitchen of Your Dreams

Natural gas appliances put the finishing touches on your kitchen redesign.

By Tonya McMurray

In many homes, the kitchen is the hub of the house. So perhaps it's not surprising that kitchens are where homeowners put a lot of remodeling dollars and effort.

Over the last five years, nearly 40 percent of the money homeowners spent in home improvement went into kitchen remodels, according to a recent survey by Houzz Inc.

CREATING A PLAN

The purpose of a kitchen remodel will determine where a homeowner focuses the most attention, said Elle H-Millard, CKD, a 2018 National Kitchen & Bath Association (NKBA) insider and cast member of HGTV's "Design Star Season 2."

For example, a homeowner updating a kitchen in preparation for a



When designing your dream kitchen, you'll want to choose a style that reflects your individual tastes as well as one that complements the style of your home.

PHOTO COURTESY OF TARYN EMERSON INTERIORS. DESIGNER: TARYN EMERSON, TARYN EMERSON INTERIORS. PHOTOGRAPHER: JARED BUMGARNER.



Natural gas ovens and cooktops are the ideal addition to your dream kitchen, offering more precise cooking in an energy efficient and cost-effective way.

sale of the house might add luxury materials to increase the home's value.

If you're remodeling for aesthetic reasons, H-Millard recommends identifying a style that best represents you and reflects the style of your home.

It's also important to consider how you use your kitchen. Do you entertain or just cook for family? Do you want the kitchen to be mostly a work space or do you want space for socializing? And, if you plan to be in the home for a long time, how might you use your kitchen in the future?

"The idea of functionality seems so obvious, but it's often overlooked," H-Millard said. "Really dissect how you intend to use your space. Whatever the scenario, design around your lifestyle."

SETTING A BUDGET

Almost everything in the kitchen – from cabinets to sinks to your natural gas stove – come in a variety of price points.

"Keep in mind that kitchens are like cars: there's a base model and a luxury end," H-Millard said. "Determine where you want to be and decide if you have financial wiggle room."

To determine where to invest your money, consider which upgrades increase your home's value and how important things like technology, sustainability or minimal maintenance are to you. You'll also want to determine the remodel's life span.

"Is this renovation something you want to last a lifetime? Is it for a

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— Elle H-Millard, CKD

quick flip? Do you like constant change and think you'll get bored with it in a few years? These types of questions may determine costs and materials," H-Millard said.

ADDING APPLIANCES

According to the Houzz Kitchen Trends Study, 83 percent of homeowners replace at least one appliance during renovations.

When evaluating what to buy and how much to spend on new kitchen appliances, consider how frequently you use a particular item. If you use burners to cook most of the time, you may want to prioritize a natural gas cooktop. If you're a baker, a natural gas stove can provide moist heat that enhances the consistency and taste of baked goods.

It's no surprise that gas ranges and cooktops are popular since natural gas offers many advantages. Natural gas ranges, cooktops, and ovens provide professional-level controllable heat for even amateur chefs. And, cooking with natural gas can cost about half as much as cooking with electricity.

CALL IN THE PROFESSIONALS

H-Millard recommends homeowners hire a professional for a kitchen remodel. However, if you decide to do most of the work yourself, she suggests setting aside extra funds in case things don't go as planned.

And, finally, H-Millard said, make sure you remember the essentials. "Where do you plan to eat during the remodel? Consider that your home will be disrupted for what could be months," she said. "Make a plan to work through the dust." ■



Garlic-Lime Flank Steak Fajitas

INGREDIENTS

1 1/3 lb beef flank steak, trimmed of visible fat
 1 package (1 oz) Old El Paso™ original taco seasoning mix
 1 tbsp packed brown sugar
 1 tbsp finely chopped garlic
 1/4 tsp ground red pepper (cayenne)
 1/4 cup lime juice
 2 large red or yellow bell peppers, cut into 1/4-inch strips (about 3 cups)
 1 cup sliced onions
 1 tbsp vegetable oil
 1 tsp ground cumin
 1 tsp ground coriander
 1/2 tsp salt
 6 (8-inch) Old El Paso™ flour tortillas for burritos (from 11.5-oz package), heated as directed on package.
 Chopped fresh cilantro leaves, sliced green onions, avocado slices, sour cream and lime slices, as desired.

DIRECTIONS

- 1 Place beef in large, resealable food-storage plastic bag. In small bowl, mix taco seasoning mix, brown sugar, garlic, ground red pepper and lime juice. Pour marinade over beef. Seal bag; refrigerate and marinate eight to 10 hours.
- 2 In medium bowl, mix bell peppers, onions, oil, cumin, coriander and salt; set aside.
- 3 Spray 12- to 13-inch round grill pan with cooking spray; heat over medium-high heat. Remove beef from marinade, and place in pan; discard any remaining marinade. Cook 10 to 20 minutes, turning once, until instant-read thermometer inserted in thickest part of steak reads 135°F (for medium). Transfer steak to cutting board; tent with foil and let stand five minutes.



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- 4 Meanwhile, in grill pan, cook pepper and onion mixture 5 to seven minutes, stirring occasionally, until vegetables are crisp-tender and browned.
- 5 Cut steak across grain at angle into thin slices. To serve, place beef and vegetables down center of warmed tortillas. Top with remaining ingredients.

RECIPE COURTESY OF BETTYCROCKER.COM

Cajun Grilled Fish Steaks

INGREDIENTS

Relish

1 can (7 oz) whole kernel sweet corn, drained
 1 medium plum (Roma) tomato, chopped (1/3 cup)
 2 medium green onions, chopped (2 tbsp)
 1 tbsp vinegar
 2 tsp honey
 3/4 tsp dried oregano leaves
 1/4 tsp ground red pepper (cayenne)
 1/4 tsp salt

Fish

4 halibut or salmon steaks (about 6 oz each)
 2 tbsps. Worcestershire sauce
 1/2 tsp coarse ground pepper
 1/4 tsp dried oregano leaves

DIRECTIONS

- 1 Heat gas grill. In small bowl, mix relish ingredients; set aside.
- 2 Brush halibut with Worcestershire sauce; sprinkle with pepper and oregano.
- 3 Place fish on grill over medium heat. Cover grill; cook 10 to 15 minutes, turning once or twice, until fish flakes easily with fork. Serve fish with relish.

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