

naturalLiving

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Natural gas: The best value for today



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Welcome the holidays

Some do-it-yourself tricks create holiday magic on a budget

By Tonya McMurray

Creating a magical holiday scene can be easy and affordable with just a few simple tricks, some easy crafts and a new purpose for items you already have on hand.

Your natural gas fireplace makes an ideal backdrop for your holiday decorating, whether you're looking for a cozy or festive atmosphere. Place a variety of candles in different sizes and shapes along the mantle or hearth to create a warm, inviting ambience. Or add snowmen, Santa, reindeer, Christmas villages or nativity scenes along the mantle or hearth to create a holiday scene. A cluster of poinsettias, mixed with baskets of pinecones, creates attractive and understated holiday décor around the hearth.

DIY WREATHS AND ORNAMENTS

You don't have to spend a fortune on new wreaths and ornaments. With a little creativity, you can repurpose household items or natural elements to create attractive and unique holiday decorations.

If you have unused Christmas ornaments, use hot glue to attach them and create a wreath. Repurpose yarn by wrapping it around small Styrofoam balls, then assemble them with hot glue to create a wreath. Show off photos and Christmas cards with a do-it-yourself wreath created from a wire wreath form. Spray paint the wreath form, then hot glue photos or cards around it, and add a bow to create a unique wreath that evokes memories of important people and events. Or forgo the wreath and take an old pair of ice skates, fill them with greenery and tie the laces together to create a hanger.

Use twigs to create star ornaments that can be hung from your tree, on doorknobs or around your home for a rustic holiday mood. If you have an abundance of cookie cutters, tie a colorful piece of ribbon around the top to create festive ornaments. Let the kids decorate pinecones or paper snowflakes for fun and whimsical ornaments for the tree or your home.

Create a festive table with simple and easy decorations. Start with a long strip of wrapping paper as a table runner. Fill glass vases or bowls with Christmas ornaments or pinecones and add bows or greenery to create centerpieces that cost almost nothing. Create ornament trees using a Styrofoam cone and hot glue ornaments to it.



A natural gas fireplace creates the ideal focal point for holiday decorating. Add a few simple items to the mantle and hearth to create a festive look and set the tone for your décor.

PHOTO COURTESY OF JAMES DEMERS FROM PIXABAY

ADD A THEME

A theme can help create a fun, cohesive look for your holiday décor, whether you use it throughout your home or in a single area, such as around your natural gas fireplace. Themes can include:

- **Rustic Woodland:** Use pinecones, burlap and twigs to create decorations. Add red-checked or flannel stockings, mini pine trees and snowy owls to finish out the look.
- **Victorian Christmas:** Plaid ribbons, velvet stockings, nutcrackers and Victorian holiday villages create a scene straight out of Dickens' A Christmas Carol. Include holly garlands, stacked books and lanterns to enhance the scene.
- **The North Pole:** Create your own Santa's workshop with Santa and elf figurines, reindeer and snowmen mixed in with candy canes, stockings and wrapped packages.
- **Winter Wonderland:** Silver and white garland accented with snowflakes and icicle ornaments creates a snowy theme. Add snow owls, polar bears and penguins to your hearth or mantel and use blue, silver and white ornaments to enhance the winter wonderland theme.

A decorating theme and some ingenuity can create a festive atmosphere, whether you're looking for a whimsical or elegant atmosphere. ■





Homeowners prefer gas water heaters

Natural gas water heating makes good 'cents'!

By Monica Stavish Skaggs

We take hot water for granted every time we turn on the tap. Whether we're washing our hands, rinsing a dish or taking a shower, it's nice to have hot water in abundance.

Many homeowners are turning to reliable natural gas water heaters to provide hot water when needed. Whether tank or tankless, natural gas water heaters are energy-efficient, affordable and ecologically friendly. Clean-burning natural gas is an excellent way to heat water while protecting the environment.

Compared to electricity-fueled water heaters, natural gas water heaters offer numerous advantages, including lower energy costs due to more affordable natural gas, according to the American Gas Association (AGA). Besides being cost-effective, natural gas tank style water heaters heat water faster and boast much higher first-hour ratings, so you have hot water when you need it. Some models even continue to function during a power outage.

Providing hot water more efficiently lowers operating costs, especially when it's a high-efficiency unit rather than a standard-efficiency model. Upgrading to a high-efficiency model can further reduce energy consumption and costs because it utilizes better heat transfer principles.

AGA also reports that natural gas water heaters can be more environmentally friendly, particularly in areas that heavily rely on fossil fuels to create electricity.



PHOTO COURTESY OF RINNAI AMERICA CORP.

Natural gas water heaters, such as the Rinnai Sensei RX tankless model, are energy efficient, affordable and ecologically friendly.

According to the U.S. Energy Information Administration (EIA), in 2020, approximately 58% of U.S. households used natural gas for at least one appliance, with 48% depending on it as their main water heating source.

While gas water heaters have slightly higher upfront costs than electric ones, their much lower operating costs offset that.

When considering the type of water heater to install, it's good to do comparisons. The chart below compares three water heaters available through A.O. Smith Corp., a leading manufacturer of residential and commercial water heating equipment and boilers. The gas models are clearly less expensive to operate.

Model	Energy	Size	Retail Price	Annual Operating Cost	Uniform Energy Factor	First Hour Rating	Warranty
AO Smith, Signature 100	Electric	40 Gallons	\$439	\$494	.92	53	6 years
AO Smith, Signature 100	Gas	40 Gallons	\$589	\$227	.59	65	6 years
AO Smith, Signature 8-GPM	Gas	Tankless	\$1063	\$219	.95	Continuous	15 years

SOURCE: LOWES.COM

In this example, the gas tank water heater costs \$150 more than the electric tank water heater. The electric tank efficiency is a Uniform Energy Factor (UEF) of 0.92, which is significantly higher than the gas tank UEF of 0.59. However, the estimated annual operating cost of the gas tank water heater is \$267 less per year than that of the electric model. Additionally, the first-hour ratings are significantly higher with the gas model. You get almost 23% more hot water from the gas tank model compared to the electric model. When comparing a tankless gas water heater, the equipment's lifespan is significantly longer, as is the warranty.

Therefore, although the tankless water heater is initially more expensive, it provides an unlimited supply of hot water and operates at a lower cost than other models.

MAINTENANCE IS KEY

Because natural gas water heaters are so reliable and easy to

maintain, most homeowners don't think about them as they go about their daily lives. Proper installation and upkeep of a water heater will help sustain its energy efficiency, according to the U.S. Department of Energy (DOE). Natural gas water heater thermostats should be set to a safe, efficient temperature of around 120° Fahrenheit or lower.

For tankless gas water heaters, "regular maintenance includes an annual flush with food-grade vinegar or an approved cleaner," said Kevin Morgan, director of energy at Rinnai America Corp.

Rinnai America – a subsidiary of Rinnai Corp. of Nagoya, Japan – is headquartered in Georgia. Rinnai is the largest gas appliance manufacturer in Japan and has the highest efficiency of any tankless water heater brand in the United States and Canada.

For tank gas water heaters, inspect the temperature and pressure relief valve and check the anode rod for signs of corrosion.

TO TANK OR NOT TO TANK: CONSUMERS SHOULD CONSIDER PROS AND CONS WHEN SELECTING A WATER HEATER

It's amazing how something as small as a mid-sized suitcase can provide hot water on demand throughout a home. That's what you get when you install an energy-efficient natural gas tankless water heater.

Because they're so compact and can be mounted on a wall, tankless water heaters take up less space than larger conventional storage water heaters. Tankless water heaters also save energy compared to tank models because they have higher efficiencies and don't continuously keep water hot. Tankless models can operate for 20 years, versus half that amount of time for tank models.

Tank units, however, have their benefits. Tank water heaters are less expensive and easier to replace when it's time to change out an old one. Most tank units continue to operate in a blackout. Also, tank models provide hot water to the faucet faster than tankless models.

While both tankless and traditional natural gas water heaters offer affordable options for any household, the tankless variety delivers a continuous hot water supply.

"With a tankless water heater, your home's cold water is heated only when needed and stays hot until you're done using it. This results in a limitless hot water supply and little to no wasted energy usage," said Kevin Morgan, director of energy at Rinnai America Corp.

Consumers should consider installing a tankless gas water heater for comfort and convenience, he added.



PHOTO COURTESY OF RINNAI AMERICA CORP.

The compact Rinnai Sensei RX1 99iN indoor/outdoor tankless water heater is the size of a small suitcase.

"Tankless water heaters, in particular, are great for space savings, cost-to-operate and the ability to provide endless hot water, whether you are building a new home or simply remodeling," Morgan said.

Rinnai America – a subsidiary of Rinnai Corp. of Nagoya, Japan

Consumers are advised to do business with a company that provides a warranty, solid customer service and a reliable technical service team.

DOE suggests consumers do the following when selecting a contractor:

- Get cost estimates in writing.
- Request references.
- Research the company through the local Better Business Bureau.
- Ensure the company obtains any necessary local permits and is familiar with local building codes.

Water heaters certified by the Environmental Protection Agency's ENERGY STAR® program are often eligible for utility rebates. The ENERGY STAR program also provides resources and tools to help you select energy-efficient appliances. ■



While gas water heaters have slightly higher upfront costs than electric ones, their much lower operating costs offset that.

— is headquartered in Peachtree City, Georgia. The company is the largest gas appliance manufacturer in Japan and has the highest efficiency of any tankless water heater brand in the United States and Canada.

While a conventional tank water heater can deliver a lot of hot water simultaneously, it can also run out. This can negatively impact the proper functioning of appliances such as washing machines, dishwashers, and others. With an appropriately sized tankless system, water is continually heated as it is distributed, ensuring it won't run out.

Tank-storage water heaters are still more common in homes, with 5 million gas tank units sold annually compared to about 1.2 million tankless models.

A storage water heater features a gas burner at the bottom of the tank, which receives cold water from the house's water supply and heats it to a preset temperature. Hot water is delivered throughout the home through the plumbing system as needed. As hot water is dispensed, colder water is delivered to the bottom of the tank to be heated. Tank sizes range from 20 to 80 gallons.

Coupled with their reputation for reliability, natural gas water tank water heaters tend to last 10 to 12 years, while tankless water heaters have 20-year life expectancies. They are typically easier to install than electric water heaters. Gas water heaters also require less maintenance than electric ones.

Tankless water heaters heat water continuously as it flows through the device. They are more compact and can be mounted in a mechanical closet, basement, garage or even outdoors in warm climates.

Tankless water heaters are also known as demand-type or instantaneous water heaters. They continuously heat the water for as long as there is fuel and a demand for hot water. This eliminates the extra cost of maintaining 40 to 50 gallons of water at a constant temperature in a storage tank 24/7.

The tankless variety features a gas burner that ignites when a hot water faucet is turned on, heating water as it is used. The burner turns off after the hot water faucet is turned off. A tankless water heater offers energy savings because it heats water only as needed. Many models feature leak detection and Wi-Fi connectivity, allowing users to monitor and adjust settings through phone apps.

The prices of a tankless water heater and a tank-type device vary. A tankless model typically costs around \$1,000, while a standard tank costs approximately \$500. Installation costs are similar.

When selecting any water heater, consider hiring an installer with a proven track record. Other major considerations include the size of the unit, its location and venting options. Regular maintenance will keep your natural gas water heater operating for a long time. ■



Oh, the beauty ...

A natural gas fireplace brings warmth and atmosphere to any room

By Drew Robb

Natural gas appliances offer several advantages over electric models, including affordability, efficiency and reliability. Another aspect that deserves more attention is aesthetic value. Nothing beats a gas fireplace when it comes to adding warmth and coziness to a living room.

“For a blend of modern convenience and elegance, gas fireplaces provide a clean, consistent flame,” said Chris Maxson, CEO of custom gas and wood-burning fireplace manufacturer Acucraft Fireplace Systems LLC. “Whether you prefer a sleek, contemporary look or a more traditional style, gas fireplaces offer versatility to suit a variety of interior themes.”

He champions the aesthetic quality that a natural gas fireplace con-

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— Chris Maxson, CEO, Acucraft Fireplace Systems LLC



PHOTO COURTESY OF ACUCRAFT FIREPLACE SYSTEMS LLC

Natural gas fireplaces — like this model from Acucraft Fireplace Systems LLC — make a statement and offer versatility to suit a variety of interior themes in the home.

veys to any home. A gas fire surrounded by brick or masonry exudes a rustic and enduring appeal. The combination of robust construction and visual charm creates a classic hearth setting. Alternatively, incorporating a stone or marble fireplace can add a touch of sophistication to any living room. For those seeking a more contemporary vibe, stainless steel or wrought iron are common choices.

“A fireplace is more than just a source of warmth; it’s a statement piece that defines the ambiance of your space,” Maxson said.

A house may be well designed, furnished and decorated, but a welcoming gas fireplace can transform it into a snug, charming and relaxing home.

“A fireplace adds warmth, beauty and a cozy ambiance to any home,” said Roxie Leigh, marketing manager at gas fireplace manufacturer Montigo. “The benefits of a fireplace are boundless, from increasing the value of your property to providing a cozy place for your family to gather.”

SAFETY AND INSTANT HEAT

A wood-burning fireplace can also be an attractive addition to any home. But the novelty can soon wear off due to the labor and time involved in finding wood, chopping it up, tending to the flame until the wood ignites properly, and dealing with the waste products.

A gas fireplace is so much more convenient. There is no ash, soot or smoke to deal with, and maintenance is minimal, too.

In addition, wood is never a fast solution to a warm living room. Even after all the tedious preparations have been completed, it still takes time for the room to warm up. With a natural gas fireplace, there is instant warmth the moment it is turned on. Those in cold climates find this feature especially attractive during winter months.

Safety, too, is an important consideration. The use of gas eliminates concerns about sparks, flying embers or open flames that can pose risks. Modern gas fireplaces come with automatic shut-off valves and screens to protect against hot glass.

Ultimately, a gas fireplace enhances the value of any home.

“Fireplaces are highly desirable

“Fireplaces are highly desirable features among homebuyers, and a gas fireplace adds a touch of luxury and comfort. It becomes an attractive selling point that can set your home apart from others on the market.”

— Roxie Leigh, marketing manager,
Montigo

features among homebuyers, and a gas fireplace adds a touch of luxury and comfort,” Leigh said. “It becomes an attractive selling point that can set your home apart from others on the market.” ■



PHOTO COURTESY OF MONTIGO

A house may be well designed, furnished and decorated, but a welcoming gas fireplace – like this one by Montigo – can transform it into a snug, charming and relaxing home .



Don't say goodbye to the outdoors

Natural gas appliances can extend the outdoor season even as days get cooler

By Tonya McMurray

As days grow cooler and shorter, you can still enjoy your outdoor living space to enjoy the fall foliage, bright winter days and the early signs of spring. Natural gas fireplaces, heaters, grills and lights can extend the outdoor season and let you enjoy your yard throughout the year.

The demand for outdoor spaces has increased by 50% since 2020, according to Houzz, a leading platform for home remodeling and design. With that increased interest comes a desire to use outdoor spaces throughout the year, and natural gas appliances make that possible, said Amy Bortz, vice president of marketing for RH Peterson Co.

"Ever since COVID [-19], more people are investing in and expanding their outdoor spaces," she said. "Homeowners no longer limit themselves to a stand-alone BBQ. Instead, they're creating fully appointed outdoor living spaces and enjoying them year-round. Whether it's a

"Connecting directly to a home's gas line provides a constant, reliable fuel supply and uninterrupted enjoyment without worrying about replacing tanks or running out of fuel. Typically, natural gas is a more affordable fuel option. In addition, natural gas burns cleaner than other fossil fuels, making it a more environmentally friendly option."

— Amy Bortz, vice president, marketing,
RH Peterson Co.



Fire tables, like other fire features, add both warmth and ambiance for outdoor living spaces.

PHOTO COURTESY OF RH PETERSON CO.

built-in grill or fire feature, natural gas delivers instant warmth and cooking power, making patios cozy and functional well into the cooler months."

When designing an outdoor space, Bortz recommends homeowners consider how the space will be used now and, in the future, and plan for access to natural gas, electricity and water lines. She also recommends creating zones for cooking, dining, entertaining and relaxing to determine the best placement for furniture and appliances to maximize function and flow.

Bortz said homeowners should look for premium products to maximize longevity and consider manufacturer warranties to ensure the manufacturer stands behind the quality of its products. Also, using natural gas as a fuel source provides numerous benefits for outdoor living areas.

"Connecting directly to a home's gas line provides a constant, reliable fuel supply and uninterrupted enjoyment without worrying about replacing tanks or running out of fuel," Bortz said. "Typically, natural gas is a more affordable fuel option. In addition, natural gas burns cleaner than other fossil fuels, making it a more environmentally friendly option."



“Homeowners no longer limit themselves to a stand-alone BBQ. Instead, they’re creating fully appointed outdoor living spaces and enjoying them year-round. Whether it’s a built-in grill or fire feature, natural gas delivers instant warmth and cooking power, making patios cozy and functional well into the cooler months.”

— Bortz

KEEPING WARM

A new fire feature was among the top five outdoor décor purchases made by 26% of homeowners making renovations last year, according to Houzz.

“Fire features are one of the most effective and beautiful ways to add warmth to an outdoor space,” Bortz said. “Whether it’s an outdoor fireplace, fire table or fire pit, these elements create an inviting focal point that draws people together, enhancing both comfort and ambiance and extending the use of outdoor rooms well into cooler evenings and seasons. Fire features not only provide heat, but they also spark conversation, create a cozy atmosphere and transform any patio into a year-round retreat.”

Design options range from sleek and modern to rustic and tra-

ditional, offering an option to complement individual homeowner designs. Depending on space and budget, homeowners can choose from an outdoor fireplace, fire pit, fire table or chimenea.

Natural gas patio heaters are another option for adding heat throughout the outdoor space. Heaters can be deck-mounted, hanging, wall-mounted or portable, depending on the design and space available. They typically create a circle of warmth that extends 15 feet to 20 feet.

Outdoor lighting is also important in extending the use of outdoor spaces, serving both functional and aesthetic purposes. Lighting can accentuate landscaping or focal points while also illuminating walkways, stairs and seating areas to increase safety. Lighting sources with a color temperature between 2500 and 3000 kelvins provide warm, soft light that creates a cozy atmosphere.

NOW YOU'RE COOKING

Kitchens — ranging from fully equipped cooking stations — are an important feature of outdoor spaces. According to Grand View Research, the global outdoor kitchen market was valued at \$24.45 billion in 2024, up from \$22.7 billion in 2023. The market is expected to grow 8.9% over the next five years, driven by increased spending from baby boomers and millennials.

Natural gas grills are an economical choice, costing 80% less than charcoal grills and 25% less than propane. They heat up almost immediately and offer a reliable fuel source that won’t run out mid-cookout. Gas grills can be permanently mounted or attached to a cart, allowing the grill to be easily moved when not in use.

With natural gas grills, fire features and lighting, you don’t have to say goodbye to the outdoors just because the season changes. ■



Outdoor kitchens are an important feature for outdoor living spaces, whether it's a simple gas grill or a fully equipped kitchen area.

PHOTO COURTESY OF RH PETERSON CO.

Decisions, decisions: gas or electric appliances?

Cutting through the appliance efficiency confusion

By Drew Robb

Consumers may sometimes be confused when they hear claims that electric appliances are more efficient, based on misleading numbers and half-truths. The bottom line is that natural gas is almost always the more efficient choice for home appliances when energy is compared on a source basis.

Study after study backs up this assertion. The U.S. Environmental Protection Agency (EPA), the American Gas Association (AGA) and IHS Cambridge Energy Research Associates agree that natural gas is more efficient than electricity.

That's why nearly 189 million Americans use natural gas, according to AGA. The organization's research also shows that a new residential customer gains natural gas service every minute and 60 businesses per day acquire gas.

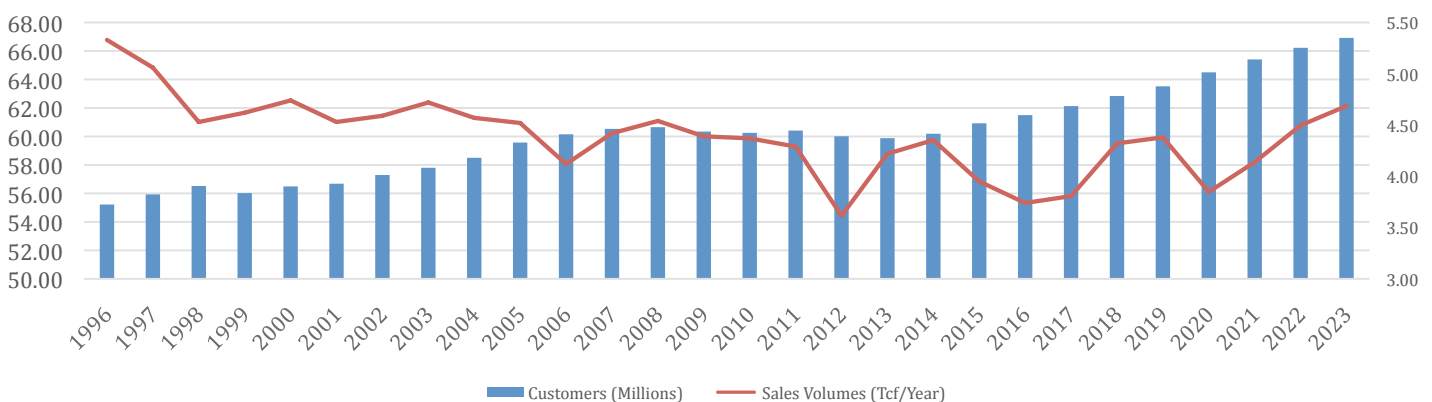
"Natural gas energy efficiency programs have lowered energy costs for customers and enabled the natural gas utility industry to serve more families and businesses every year while using less natural gas to do it," said American Gas Association (AGA) President and CEO Karen Harbert. "Americans with access to natural gas choose it."

MISLEADING NUMBERS

EnergyGuide labels are based on site efficiency numbers. This can make electric units seem more efficient. (See related article about site



Gas Customers vs. Gas Consumption



In 1996, 55.22 million homes used natural gas. As its popularity increases, the number of gas homes grew to 66.92 million in 2023. Despite a 21% increase in the number of homes, the total residential gas usage from all gas households dropped by 12%. This demonstrates just how efficient gas appliances have become. On average, a current gas home is 21% more energy efficient than one from almost thirty years ago.

versus source energy efficiency).

For example, electricity delivered from a power plant to the appliances in a residential home is only 41% efficient on average. Energy delivered from the natural gas pipeline network to appliances in a residential home score an average of 75% on overall efficiency, according to the ICF. This is due to a couple of factors:

1) Natural gas' direct combustion means more energy is converted into usable heat than with electric heaters.

2) When source efficiency is considered and appliances are rated based on their total source-to-site efficiency, natural gas appliances emerge as the most efficient.

Regardless of any number displayed in a showroom, electric appliances consume significantly more energy than gas to produce the same amount of hot water. This holds true for room heaters, water heaters, furnaces, heat pumps and stoves. Natural gas plays a crucial role in overall energy efficiency.

According to the AGA:

- Households that use natural gas for heating, cooking and drying clothes save an average of \$1,132 per year compared to homes that use electricity for those applications.
- Natural gas has saved American households \$125 billion and businesses more than \$500 billion in the last decade.
- Consumers in moderate to cold climates prefer natural gas over electric heat pumps by a ratio of 5 to 1.
- More than 189 million Americans and 5.8 million businesses use natural gas because it is affordable, reliable, safe and essential to improving our environment.
- On the coldest day of the year, a natural gas system delivers three times more energy than the electric system delivers on the hottest day of the year.
- Emissions from the natural gas distribution system have declined by 70% since 1990, while natural gas household emissions continue to decline at a rate of 1.3% per year.

SITE VERSUS SOURCE ENERGY EFFICIENCY DEBATE

People are often puzzled when they hear about site energy efficiency and source energy efficiency. Let's define them.

What is source energy? It is the total amount of raw fuel required for a residence or appliance. Source energy incorporates everything across the entire value chain – from power generation through transmission, delivery to the consumer, and its final use in the household or business. By considering every facet, source efficiency provides an accurate assessment of energy efficiency.

What is site energy? It represents the amount of heat and electricity consumed by a residence or appliance. This amount typically appears on utility bills. It only considers the direct use of that energy within the appliance as opposed to the efficiency of the complete system that delivers that energy from its source to its place of use.

"Source energy is the most equitable unit of evaluation and enables a complete assessment of energy efficiency."

— ENERGY STAR®

Site energy efficiency numbers may suggest that electric appliances are more energy efficient. These numbers don't consider the relative inefficiency of electricity as it moves from generation to transmission to home delivery. Hence, the U.S. Environmental Protection Agency recommends that only accurate source energy numbers be considered for its ENERGY STAR® program.

According to ENERGY STAR, "Source energy is the most equitable unit of evaluation and enables a complete assessment of energy efficiency."

When comparing source energy and site energy, natural gas appliances are more energy-efficient than electric appliances. A useful metric for accurately comparing gas and electric appliances is the site-to-source ratio. It signifies the amount of energy used compared to the amount of energy consumed to create the power used by an appliance.

For example, energy purchased from the electrical grid tends to have a site-to-source ratio of around 2.8. This means that almost three units of energy are required at the source to deliver one unit of energy to the site.

Natural gas appliances, on the other hand, typically record site-to-source ratios of around 1.05.

Why the discrepancy? A large amount of energy is lost from the electrical generation and as it traverses across

EXTERNAL VALIDATION OF THE SUPERIORITY OF GAS

It isn't just the AGA or natural gas utilities that vouch for natural gas over electricity. Independent research firms have come to the same conclusion. For instance, an IHS Cambridge Energy Research Associates study found that switching from an electric to a natural gas-heated home saves U.S. consumers an average of about \$6,000 over 15 years. The savings could be significantly more in colder climates.

Architects and consultants agree.

"It takes approximately three times as much energy in the electrical generation process to create one unit of usable energy as it does for natural gas," said architect Michael Noll, founder of Boston, Massachusetts-based Archtoolbox.com, which provides advice on home efficiency and sustainability.

In sharp contrast, according to the EPA, more than 90% of the natural

gas that enters a pipeline reaches the consumer.

When everything is considered, natural gas comes out far ahead of electricity.

"America's abundant natural gas and our vast utility delivery system provide the most affordable way for customers to heat their homes and feed their families," AGA's Harbert said. ■

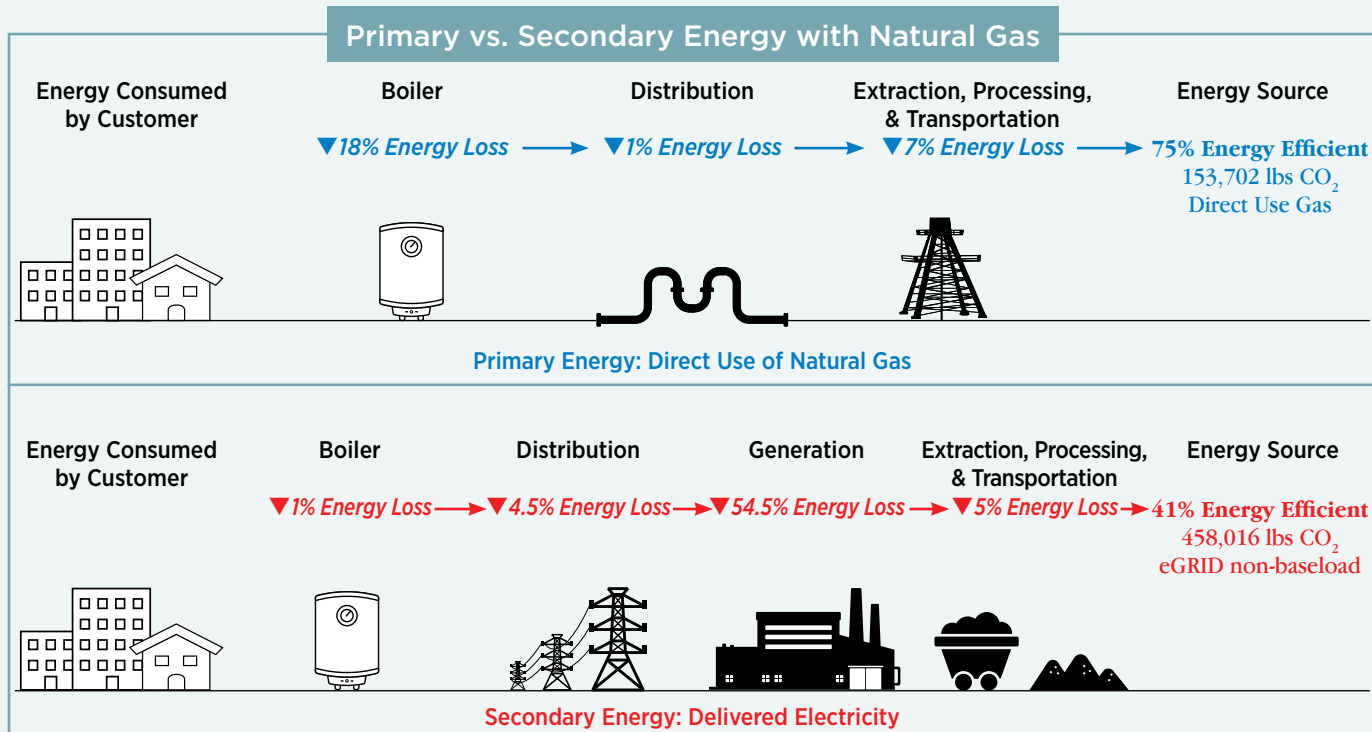
"It takes approximately three times as much energy in the electrical generation process to create one unit of usable energy as it does for natural gas."

— Michael Noll, founder,
Archtoolbox.com

transmission & distribution lines. However, according to the EPA, almost all the energy put into a natural gas pipeline reaches the home, making gas far more efficient.

The bottom line: Natural gas wins hands down

regarding overall efficiency and cost. When comparing relative efficiencies, the next time you consider new appliances, ensure you are using source energy (source-to-site energy), not site energy. ■



SOURCE: ICF



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LAMB ROGAN JOSH

INGREDIENTS

For the spice mix:

- 1/2 teaspoon cassia bark pieces (or a 1-inch whole piece)
- 3 whole green cardamom pods
- 1/2 teaspoon whole cloves
- 1/2 teaspoon whole fennel seeds
- 1/2 teaspoon whole black peppercorns
- 5 whole Kashmiri chilies (or 1 teaspoon Kashmiri chili powder)
- 1 whole black cardamom pod (3 seeds only, use the rest for garam masala)
- 2 teaspoons ground sweet paprika (optional, for color only)

For the rogan josh:

- 2 1/4 pounds boneless lamb shoulder or leg, marbled with fat
- 6 tablespoons neutral oil, divided
- 4 whole green cardamom pods
- 1 whole stick cinnamon
- 4 whole cloves
- 1/4 teaspoon whole black peppercorns
- 1/4 teaspoon whole fennel seeds
- 1/4 cup hot chicken or lamb stock
- 1 tablespoon cornstarch
- 1 cup Greek-style yogurt, at room temperature
- 1 large onion, thinly sliced (optional)
- 1 teaspoon sugar, plus more to taste
- 1 teaspoon red wine vinegar, plus more to taste
- Salt to taste
- Large handful fresh cilantro, chopped, to garnish

DIRECTIONS

- 1 First, make the spice mix. Toast each spice (except for the paprika), one by one, for 30 - 45 seconds (until fragrant) in a dry skillet over high heat, and transfer to a bowl. Let cool completely, then blend to a fine powder in a spice grinder.
- 2 Trim the lamb of excess fat and then cut



into large chunks. Rub the spice mixture into the lamb.

- 3 Heat 2 tablespoons of the oil in a large Dutch oven, and sear the lamb pieces on all sides, being careful not to burn the spices. Don't crowd the pan; do this in batches, if necessary, and on medium-low heat. Transfer to a bowl.
- 4 Add the remaining 2 tablespoons of oil to the pan and the whole cardamom, cinnamon stick, cloves, peppercorns and fennel seeds. Sauté for 30 seconds, until the spices are fragrant, then add the hot stock, scraping up any browned bits from the bottom of the pot. Cook for 1 minute.
- 5 Return the lamb to the pot. Whisk the cornstarch into the yogurt, then add this to the pot. Stir for a minute and season with a little salt. Cover the pot and turn the heat down to very low. The sauce should barely be bubbling.
- 6 Cook for an hour. After an hour, uncover the pot. Taste and add a little more salt. Continue to cook, uncovered, for an additional 2 hours or until the lamb is very tender and the sauce is reduced.
- 7 Meanwhile, heat the last 2 tablespoons of oil in a heavy pan over low heat. Add the onions and 1 teaspoon of sugar. Caramelize the onions, stirring occasionally, until sweet and brown, about 40 minutes.
- 8 When the lamb is tender, stir in the onions, if using, and 1 teaspoon of red wine vinegar. Taste and adjust the seasoning by adding more salt, sugar and red wine vinegar, as required, to balance the flavors for a deeply spiced, rich sauce.
- 9 Stir in the cilantro. Serve with rice or tandoori roti.

SOURCE: MICHELLE PETERS-JONES FOR THE KITCHN