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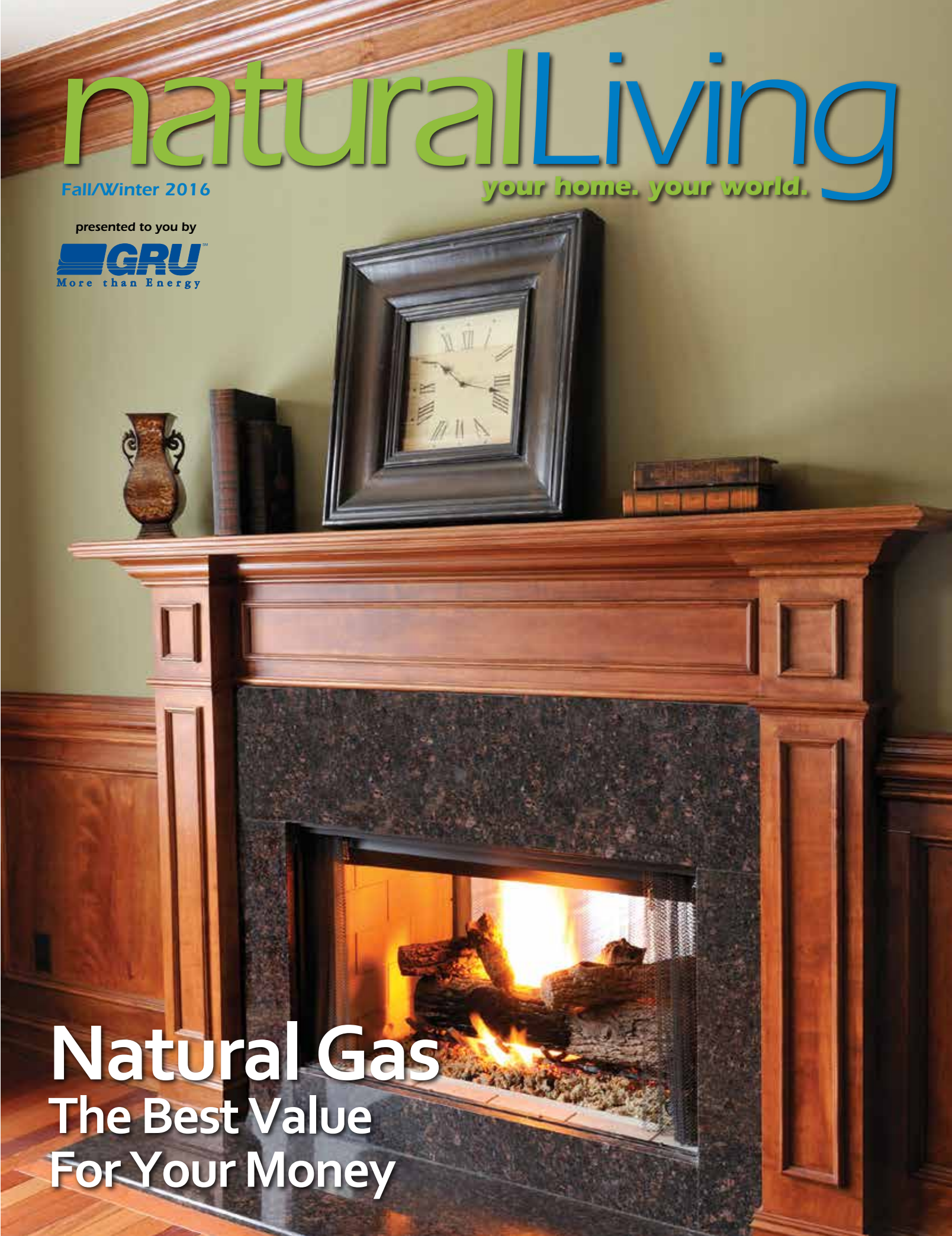

Natural Gas
The Best Value For Your Money

INSIDE

FEATURE

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The right choice

Gains in energy efficiency make natural gas heating a no-brainer.

By Drew Robb

Natural gas heating has held the economic advantage over electricity and oil for quite some time. Steady gains in energy efficiency mean that natural gas is by far the most cost effective way to heat a home or a commercial property.

"In many markets, it is much less expensive to use gas for heating," said Marc Chenier, general manager at Canada-based Dettson Industries. "Gas has become very competitive, even more so when you combine heating with gas stoves, clothes dryers and other appliances."

Figures from StatCan, Canada's national statistical agency, cite the average annual cost for home heating with natural gas in Canada to be $868. Electric heating on the other hand, costs $2,868 per year.

"Natural gas is an affordable, clean, safe and reliable energy choice for homeowners," said Timothy M. Egan, president and CEO, Canadian Gas Association. "At a time when other energy costs are rising, Ontarians are getting excellent value from their natural gas use."

The same is true for U.S. consumers. According to the American Gas Association (AGA), natural gas prices have been at historic lows for the past couple of years. These prices are boosted even further by recent gains in efficiency that are passed directly to the consumer.

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EFFICIENCY MATTERS

By its very nature, natural gas is a far more efficient source of heating than electricity. Bruce McDowell, managing director, energy analysis and standards, AGA, noted that about 90 percent of natural gas produced is delivered to customers as useful energy — only about 10 percent is lost in the process. In contrast, only about 30 percent of the energy converted to electricity in conventional generating facilities reaches consumers — a staggering 70 percent is lost along the way. Part of it is wasted while burning energy to create electricity. The rest is lost in the transmission and distribution of the electricity to the home or business.

"If you consider the inherent energy losses in electricity generation and transmission, natural gas furnaces are the most efficient heating option in terms of both cost and energy usage," said Mark Ladd, senior product manager, Carrier Corp.

But that is only the beginning of the efficiency story. Advances in technology have boosted gas appliance efficiency to unprecedented levels.

Natural gas appliances are faster and use less energy than electric appliances. Take the case of natural gas furnaces. They typically last longer than electric heat pumps and deliver heat that is up to 25° Fahrenheit warmer. According to the AGA, a new, high-efficiency natural gas furnace and cooling system can save up to $1,200 a year in operating costs.

"Innovation introduced into the latest wave of heaters has pushed natural gas efficiency close to 100 percent," said Dettson's Chenier.

RIGHT SIZING

Dettson, for example, has developed a technique to distribute air better by right sizing the unit to tailor it to the needs of the home. This prevents energy waste by producing the required amount of heating accurately instead of blasting out too much heat in short bursts, which leaves some parts of the home too hot while large areas remain cold. Chenier said that this is accomplished by improving ventilation and air flow in order to provide uniform heating for all spaces.

The system works via a series of smart ducts, which are 2.5 inches in size, that are strategically positioned around the building. As well as taking up less space than traditional ducts, they offer far better air distribution. Technicians precisely define the heating and cooling load to determine the number and placement of ducts. As each duct has a diffuser at the end, air is more evenly spread around the area.

Further, the latest generation of gas heaters is unlike older models in many other ways. (See related article on page 05). Early gas furnaces were either all on or all off. A thermostat controlled their operation and the result was a lot of heat in one burst, then no heat at all until the preset temperature limit was reached. Consequently, parts of the space would be warm and others would remain unheated. Chenier explained that such blasts produce different zones of heat both horizontally and vertically. A later improvement was the two-stage heater where a little more control could be implemented. But the newest models have a gas valve that modulates the quantity of heat evenly and precisely.

SILENCE, PLEASE

"This is far more efficient; instead of blasting out a lot of heat for two minutes, it gradually emits heat over a longer period," Chenier said. "This provides people with a lot more comfort, as the entire space is warmed rather than a few pockets."

These more efficient gas heaters have another major benefit — lack of noise. Traditional heaters would turn a powerful fan on to push a large quantity of hot air into the room. These days, slow and evenly distributed heating consumes less fuel and emits very little sound.

"Today, people want uniform, thermal comfort and relative quiet," said Chenier. "The latest gas heaters provide both costs effectively."

This new breed of gas furnaces is now widely available and the leading

models supply over 95 percent annual fuel utilization efficiency (AFUE). This means that almost all of the energy in the natural gas is converted into useful energy to heat the home.

"Residential gas furnace efficiency has improved significantly over the years, and advances in design will continue to drive furnaces closer toward 100 percent efficiency," Ladd said. "Today, there are several furnaces available with ratings over 98 percent AFUE, which translates into over 98 percent of fuel energy converted into useful heating energy."

EFFICIENT, GOOD FOR THE ENVIRONMENT

The efficiency of natural gas furnaces is also good for the environment. Since it is by far the cleanest fossil fuel around, natural gas is, therefore, a highly efficient form of energy. Compared to other fuels, it has fewer impurities, is less chemically complex, and it's combustion results in far less pollution.

"Using natural gas to replace less environmentally benign fuels can help address simultaneously a number of environmental concerns, such as smog, acid rain and greenhouse gas emissions," said AGA's McDowell.

Natural gas heating, then, is the right choice in more ways than one. Not only is it right for the home but it's good for the environment. ■

INNOVATIVE GAS-HEATING OPTIONS HIT THE MARKET

There are many great new options on the market that incorporate the best in gas-heating innovation. The Chinook Compact, for example, is designed for multifamily construction. It provides 15,000 BTUs of heat and up to 1 ton of cooling capacity. All of this comes packed into a unit that is 10 inches by 23 inches. The Chinook line of gas furnaces from Dettson Industries provide around 96 percent efficiency.

"The Chinook Compact is about the size of a desktop computer and provides what people want — uniform thermal comfort without a lot of noise," said Marc Chenier, general manager at Canada-based Dettson.

Similarly, the Carrier Infinity 98 Gas Furnace offers a combination of efficiency, comfort and smart technology for those who want to be comfortable and lower their energy bills. Features include up to 98.5 percent heating efficiency, Greenspeed intelligence for comfort and energy savings, a modulating gas valve capable of matching the heating needs of the home, and a variable-speed blower motor for ultra-quiet operation.

Another of the latest wave of highly efficient natural gas furnaces is produced by Lennox International Inc. The Lennox SLP98V, for example, offers 98.7 percent efficiency via its AirFlex technology that allows the local dealer to adjust airflow to best match a specific lifestyle, home design and geographic location. When paired with the Lennox iComfort S30 thermostat, the SLP98V adapts to the routine of the home and adjusts temperatures accordingly.

The Chinook Compact from Dettson is part of a new breed of high efficiency natural gas space heaters.

PHOTO COURTESY OF DETTSON INDUSTRIES

Warm and cozy

Natural gas fireplaces create a warm and welcoming atmosphere.

By Tonya McMurray

The flickering flames of a fireplace offer warmth in both temperature and mood, creating a cozy and inviting home.

More than half of U.S. homeowners have some type of hearth product in their homes, with nearly three-fourths of those having a fireplace, according to the Hearth, Patio and Barbecue Association (HPBA).

About 40 percent of those hearth products use natural gas, according to HPBA, and most owners of natural gas hearth products believe those products offer the appearance of a traditional hearth.

Natural gas hearth products include built-in or free-standing fireplaces and fireplace inserts that can turn a traditional wood-burning fireplace into a natural gas fireplace. Some natural gas fireplaces or fireplace inserts must be vented through an existing chimney, wall or roof; others are vent-free, allowing for greater installation flexibility.

MORE HEAT, LESS MESS

Natural gas fireplaces offer comfortable and consistent heat at an affordable price. While wood fireplaces lose considerable heat through

Natural gas fireplaces offer cozy warmth without the mess and work of wood burning fireplaces.

PHOTO COURTESY OF CONTINENTAL FIREPLACES

PHOTO COURTESY OF HEARTH & HOME TECHNOLOGIES

Natural gas fireplaces provide both heat and comfort with an affordable and efficient fuel source.

the chimney, most of the heat from a natural gas fireplace stays in the home, said Bob Ballard, senior vice president of marketing, Hearth & Home Technologies.

Getting a fire started is much easier with a gas fireplace. There is no need to chop wood or haul logs. No need for matches and kindling. And, no need for cleaning out ashes after a few fires. Natural gas fireplaces have easy controls for starting and maintaining the fire.

"Homeowners [can] control their fire with just the flip of a switch or a touch of your remote, and soon, a tap of your phone," Ballard said.

STYLE AND COMFORT

Customers often want options when adding a natural gas fireplace to their home, said Andrea Alden, digital writer, marketing for the Napoleon Group of Companies, a Canadian-based manufacturer of fireplaces, grills, furnaces and other outdoor products.

"Customization is key to making a fireplace either a statement piece or something that will blend seamlessly into their lives," she said. "It's all about enhancing the homeowners' experience and comfort in their own home."

Homeowners can choose from different types of ember beds (including stones or glass in place of logs) and have many options for the mantel and hearth surrounding the fireplace.

Ballard notes one trend in the gas hearth industry is outdoor fireplaces. In fact, a 2015 study by the American Society of Landscape Architects found that fireplaces are the most popular outdoor design element.

"Consumers are continuing to look for ways to enhance their outdoor living space to create a distinct, beautiful deck or patio space for entertaining and relaxing," Ballard said.

MAKING THE CHOICE

Because of the variety of available products, gas fireplaces can be added to almost any home, Alden said. She recommends that homeowners find a professional dealer and installation expert to help determine what product best fits the consumer's home and needs.

"They may have their hearts set on a fireplace, but instead actually need an insert, or vice versa," she said. "Consulting with a fireplace professional will help ensure that all of a homeowner's needs are met."

Ballard said homeowners should also consider the types of technologies that are important to them. For example, products from Hearth & Home Technologies offer an Intellifire™ Ignition System, which constantly monitors performance to provide increased safety. Continental Fireplaces, a member of the Napoleon Group of Companies, provides an electronic ignition system that ensures operation even during power outages.

With flexible venting options, direct venting fireplaces and gas inserts, consumers have many choices for bringing in the warmth of a natural gas fireplace into their homes. ■

Outdoor fireplaces are the most popular outdoor design element.

PHOTO COURTESY OF HEARTH & HOME TECHNOLOGIES


BEST
CHOICE

A great deal

Natural gas offers a superior energy value proposition.

By Tonya McMurray

Over the past decade, the United States has become a major player in the production of natural gas. And the biggest beneficiary of this drilling boom has been consumers, who have realized lower and more stable energy costs and the creation of millions of new jobs.

Discoveries of large shale gas formations thousands of feet below the earth's surface have vastly increased the amount of natural gas available in North America. In addition, new drilling technologies have made it more cost effective to bring natural gas to market.

As a result of these activities, North America now produces almost all the natural gas it uses, according to America's Natural Gas Alliance. Because so much of the nation's natural gas comes from domestic production, it is a reliable fuel source with stable pricing that is not dependent on foreign markets, changes in political alliances or other disruptions in foreign supply.

EFFICIENT AND AFFORDABLE

As North America's natural gas supply has increased, prices have decreased dramatically. Natural gas prices in December 2015 were the lowest since March 1999, according to the Energy Information Administration (EIA).

"The commodity prices consumers are seeing in their monthly bills are the lowest they've been in years," said Patricia Jagtiani, executive vice president, Natural Gas Supply Association.

Those lower prices mean greater efficiency for consumers. Natural gas appliances cost less to operate than electric appliances. Natural gas dryers dry clothes quicker and are less costly than electric dryers. Natural gas hot water heaters typically heat water twice as fast as electric heaters — and at about half the cost. Natural gas furnaces last longer than electric heat pumps and deliver heat that is up to 25 degrees warmer, according to the American Gas Association.

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"Natural gas is a great, efficient fuel for home heating and cooking," said Catherine Landry, vice president, communications, Interstate Natural Gas Association of America. "Unlike electricity, which is generated from other energy sources, natural gas can be used directly, which makes it particularly effective. It's clean-burning, and because we have abundant domestic supply, it's very affordable."

When you consider the site-to-source cycle for both electricity and natural gas, the delivery of natural gas to the consumer is three times more efficient than the delivery of electricity.

The EIA is predicting slight increases in natural gas prices over the next two years, but expects prices to remain relatively stable over the next decade. That's good news for consumers because, even with slight increases in pricing, natural gas remains a great energy value, Landry said.

CLEAN ENERGY SOLUTIONS

Not only is natural gas a great value for the pocketbook, it also is one of the best energy options for the environment. Natural gas is the cleanest of all fossil fuels, producing half as much carbon dioxide as electricity generated by coal, according to the Environmental Protection Agency (EPA).

Natural gas is primarily methane, which has a higher energy content compared to other fuels, and burns cleaner than oil and coal, according to the EPA. The combustion of natural gas releases very small amounts of sulfur dioxide and nitrogen oxides, virtually no ash or particulate matter and lower levels of carbon dioxide, carbon monoxide and other reactive hydrocarbons.

Because of that, natural gas is less of a factor in environmental hazards such as smog (composed primarily of carbon monoxide and nitrogen oxides), acid rain (formed from sulfur dioxide and nitrogen oxides), and climate change.

JOB CREATION

The abundance of natural gas is good news for consumers, but it's also good for the economy. The EIA reports significant growth in oil and gas industry employment with oil and gas industry jobs growing at 40 percent over the last five years compared to a 1 percent growth in private sector jobs during that same period.

A May 2016 study by IHS Economics prepared for the National Association of Manufacturers noted that "the rapid increase in domestic natural gas production continues to reshape the U.S. economy and redefine America's competitive advantages within the global economy, especially within the manufacturing sector."

The IHS study estimates that every mile of natural gas pipeline

"Homes can't run without electricity. There has been an absolute demand for electricity as a vital source of energy. But now we can move that load from the electric grid to natural gas. And now you can live with just natural gas."

— Donald Williams, CEO, M-TriGen

built will result in 57.9 jobs being created, with 9.9 of those in the manufacturing sector. According to the study, increased domestic natural gas production and the resulting decrease in prices meant $190 billion to the gross domestic product (GDP) and 1.9 million new jobs in 2015. IHS predicts lower natural gas prices will result in increased consumer purchasing power, higher business profits and improved competitiveness for U.S. manufacturers.

"Manufacturing has really been helped by the decrease in prices," Jagtiani said. "They are now more globally competitive after years of experiencing a downturn."

FUELING NEW TECHNOLOGIES

With an abundant, affordable fuel source, companies are looking for ways to capitalize even more on the value of natural gas. Europe and Asia have seen the development of several products, including a gas heat pump the size of a kitchen cabinet and micro Combined Heat and Power (CHP) systems designed for homes.

CHP is a technology that generates electricity while capturing usable heat produced during the generation of electricity. That captured heat can then be used to warm a building or boil water. In the U.S., CHP has been used primarily in commercial buildings, but one company is looking to bring the technology to homeowners.

M-TriGen's PowerAire™ is a micro CHP system that combines cooling as well as heat and power. M-TriGen CEO Donald Williams said the technique uses a patent-pending vapor compression that brings ambient air into the system, significantly increasing its efficiency. The system creates all the electricity a household needs as well as providing for both heating and cooling needs — all fueled by natural gas.

"Homes can't run without electricity," Williams said. "There has been an absolute demand for electricity as a vital source of energy. But now we can move that load from the electric grid to natural gas. And now you can live with just natural gas."

With an abundant natural gas supply and stable pricing, consumers may see more innovative products in the marketplace. But whether taking advantage of innovative technology or fueling natural gas appliances, natural gas offers a superior value for consumers.

"It's really a good news story for the country," Jagtiani said. "We have a domestic supply of energy at our disposal that is reliable, affordable and clean." ■

Bringing the heat

Natural gas water heaters beat the competition, producing more hot water and lower operating costs.

By Drew Robb

Natural gas is an abundant, domestically produced fuel that is the best choice in terms of reliability, comfort and cost savings. That's why so many homes are switching from electric to gas water heating.

"When it comes to residential natural gas water heaters, the advantage is more hot water and a lower operating cost," said Jeffrey Haney, product manager, residential gas tank, Rheem Manufacturing Co.

Part of the reason gas water heaters are more beneficial is continuous technological innovation by the industry. The models of today are not your grandfather's — or even your father's — water heaters. They have evolved dramatically in terms of functionality and efficiency compared to those of a generation ago. Not only has burner technology improved tremendously, but so have insulation materials to help retain heat. Heat exchangers have also gotten much better with time, creating a more efficient and less expensive way to heat water.

"Natural gas water heaters provide a great solution not only for residential but commercial and institutional customers as well, since they provide a lower cost to operate over electric water heaters and have quicker recovery ratings," said James York, vice president, engineering, Rinnai America Corp. "What this means is that you get a lot more hot water."

Another source of economic and efficiency gain is the development of the tankless water heater (See related article on page 13).

"Natural gas water heaters provide a great solution not only for residential but commercial and institutional customers as well, since they provide a lower cost to operate over electric water heaters and have quicker recovery ratings."

— James York, vice president, engineering, Rinnai America Corp.

"High efficient natural gas tankless water heaters provide even further efficiency gains by nearly eliminating standby loss and ensuring a constant supply of hot water," York said.

GAS HEATS WATER FASTER

Natural gas water heaters produce more hot water, Haney explained. In fact, two gas water heaters operate for less than one electric unit.

"When it comes to electric water heaters, you need a larger gallon capacity compared to a natural gas water heater," he said. "For instance, to match the amount of water provided by a 50-gallon gas water heater, you would need an 80-gallon electric unit."

Yet another factor to consider is the consistently low price of natural gas. According to the U.S. Energy Information Administration (EIA), the price of residential natural gas has declined over the past six years Combine this with improved efficiencies, the overall cost of operation for natural gas water heaters are nearly half of the electric water heater for the same gallon capacity.

While Rheem manufacturers both electric and natural gas water heaters, it favors the latter. Why? The company compared its 50-gallon natural gas water heater with its 50-gallon electric water heater: The natural gas model saved nearly $300 in the annual operating cost compared to the electric model. ■

TANKLESS WATER HEATERS OFFER REAL VALUE

Tankless water heaters offer endless hot water, a longer life and lower operating costs than a unit with a tank. According to Energy.gov, ENERGY STAR®-rated tankless water heaters save consumers about $100 annually compared to water heaters that use a tank.

"The benefits of a tankless water heater versus a tank water heater are unmatched," said James York, vice president, engineering, Rinnai America Corp. "Tankless water heaters deliver innovation and technological leadership in water heating design, while providing customers with an endless supply of hot water, energy savings, a space-saving design and environmental benefits. Tankless is always the best choice."

Rinnai Ultra Series RUR model tankless water heaters, for residential consumers, have a recirculation feature designed to save homeowners money.

Rheem Manufacturing Co. is another vendor offering tankless models. The Rheem Prestige RTGH is a series of high-efficiency condensing tankless gas water heaters designed for continuous hot water. They provide high efficiency and have a water-savings setting. Upon activation, this setting can save homeowners up to 1,100 gallons of water per year by limiting the flow of water through the pipes while still providing enough hot water for all domestic water needs in a home.

"Tankless owners are impressed with the way tankless uses energy only when there's a demand for hot water while providing continuous hot water — creating a way to save energy and money on energy bills compared to a tank water heater," said Jeffrey Haney, product manager, residential gas tank, Rheem. "Tankless units are compact, and they are more cost effective than ever before."

Tankless water heaters, such as this model from Rinnai America Corp., are helping homeowners save big on energy bills.

PHOTO COURTESY OF RINNAI AMERICA

Fired up

Gas is a natural fuel choice for professional chefs.

By Tonya McMurray

Turn on any cooking show or Iron Chef Competition, and you're likely to see chefs lighting a gas flame to help cook the perfect dish.

It's no accident that gas ranges are all the rage in those cooking shows. A study conducted by Fryette Consulting Group indicates that 98 percent of the professional chefs surveyed prefer to cook with natural gas.

The Gas Foodservice Equipment Network (GFEN), which contracted the survey, notes that gas saves time, energy and money.

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BETTER CONTROL, CONSISTENT RESULTS

Professional chefs rely on natural gas primarily because it offers superior temperature control. Unlike electric burners, which take time to heat up, a natural gas burner heats up immediately. And, when the burner

Natural gas provides an optimal fuel for the oven, providing a moister heat that benefits both baked goods and meats.

PHOTO COURTESY OF BLUESTAR

PHOTO COURTESY OF BLUESTAR

The superior temperature control provided by natural gas is especially important for sauces and other delicate foods.

is turned off, it cools down quickly so food doesn't continue to cook.

"This enables the chef to go from a rapid boil to a delicate simmer instantly," said Jeff Essenburg, vice president, sales, FiveStar, a division of Brown Stove Works Inc.

Cooks can also control the flow of gas, and thus the intensity of the flame, to get the perfect temperature for any food. That level of precise control can be especially important when cooking sauces or other delicate foods and makes natural gas the best choice for many types of cooking.

"The high heat produced by a natural gas cooking appliance is far superior (to electric ranges) for wok style cooking," said Matthew Schutte, marketing associate at BlueStar. "Another benefit is the ability to quickly sear meats to lock in the flavorful juices."

Natural gas is not only the perfect fuel for stovetops but also for ovens, offering a moister heat that keeps foods from drying out.

"Professional chefs typically prefer natural gas for cooking roasts and meats in the oven cavity," Essenburg said. "This is primarily due to a higher moisture content within the oven cavity when cooking with natural gas, which can help retain the juices in the roasts and meats being cooked."

The high moisture level is also good for baking, Schutte said.

AFFORDABLE AND RELIABLE

In addition to more consistent culinary results, cooking with natural gas costs about half as much as cooking with electricity. Not only is natural gas cheaper than electricity, heat from natural gas is distributed more evenly, allowing food to cook quicker, further reducing fuel costs, according to GFEN.

Many models of gas ranges, stoves, ovens and grills use electronic ignition switches rather than continuously burning pilot lights, offering additional energy savings.

Whether in a professional or home kitchen, natural gas offers both the chef and the everyday cook a reliable and consistent fuel source. ■

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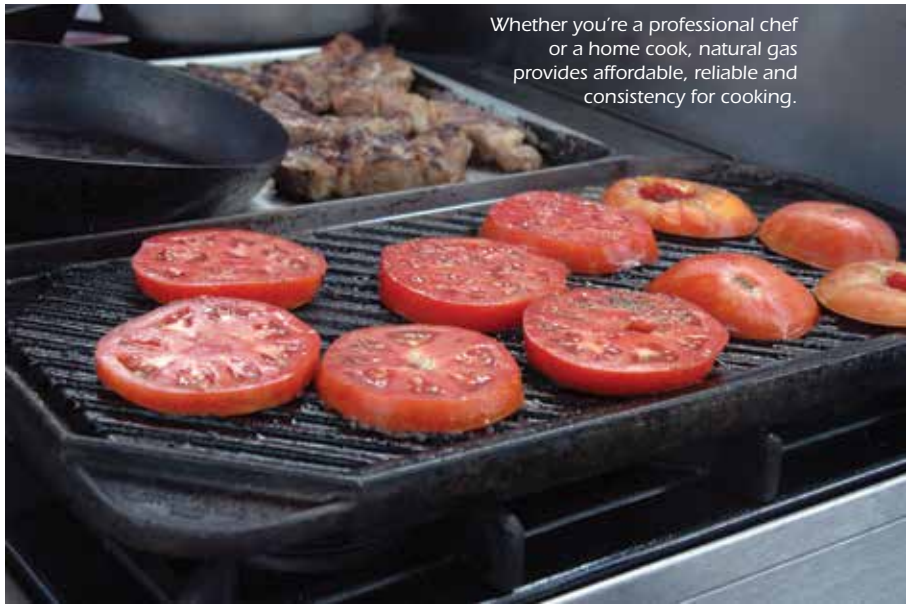

Whether you're a professional chef or a home cook, natural gas provides affordable, reliable and consistency for cooking.

PHOTO COURTESY OF FIVESTAR

RECIPE COURTESY OF BOBBY FLAY; PHOTOGRAPH BY KANA OKADA

Black pepper-pomegranate molasses glazed turkey

Total Time: 2 hours, 15 minutes
Prep: 15 minutes
Cook: 2 hours

INGREDIENTS FOR GLAZE

1 1/2 cups pomegranate molasses
3/4 cup prepared horseradish, drained
3 tablespoons Dijon mustard
Kosher salt and freshly ground pepper

INGREDIENTS FOR TURKEY

1 15 -pound fresh turkey
1 stick unsalted butter, softened
Kosher salt and freshly ground pepper
4 cups homemade chicken stock or low-sodium canned broth, warmed

DIRECTIONS

1. Heat the oven to 450 degrees F.

2. Make the glaze: Whisk the pomegranate molasses, horseradish, mustard, 1/2 teaspoon salt and 1 1/2 teaspoons pepper in a medium bowl. Let it sit at room temperature to allow the flavors to meld.

3. Meanwhile, prepare the turkey: Remove the neck and giblets, then rinse the bird inside and out with cold water and pat dry. Rub the entire surface of the bird with the butter and season well (including inside the cavity) with salt and pepper. Truss the turkey with kitchen twine and place it breast-side up on a rack in a large roasting pan. Roast until slightly golden brown, about 45 minutes.

4. Reduce the oven temperature to 350 degrees F, and continue roasting 1 more hour, basting with the chicken stock every 15 minutes. Brush the entire turkey with 1 cup of the pomegranate glaze and continue roasting until an instant-read thermometer inserted into the thigh registers 160 degrees F, about 15 more minutes. Remove the turkey from the oven and brush with the remaining glaze. Tent loosely with foil and let sit 15 minutes before carving.