

BUILDING OR REMODELING YOUR PROPANE DREAM HOME

Design inspiration and planning tips
for a harder-working house.





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CONGRATULATIONS

By opening up this guide, you've taken an important and exciting first step. A step toward a higher-performing, more comfortable home that's powered by propane.

PICTURE YOUR DREAM HOME. WHAT DO YOU SEE?

Maybe your family curled up on the couch on an autumn night in your warm living room. Or a kitchen full of guests while you finish up an appetizer on your stove.

A PROPANE HOME HELPS YOU ACHIEVE YOUR VISION.

In this guide, we'll bring you knowledgeable guidance from the pros on ways you can maximize the performance and efficiency of your home with propane. You're in good hands. **LET'S GET STARTED.**



DID YOU KNOW?

Propane is already being used in over 48 million U.S. households for residential uses, including grilling.

Propane is used by millions of other Americans for transportation, commercial, industrial, and agricultural applications.

Propane operates similarly to natural gas.

Propane is made in America.

THE PROPANE EDUCATION & RESEARCH COUNCIL

PERC oversees propane's growing footprint as a safe, clean, and domestically produced energy source by funding research on propane applications in homes and buildings. Over the last several years PERC has invested millions of dollars in research, case studies, online training courses, training videos, and guides such as this one. Learn more at propane.com.

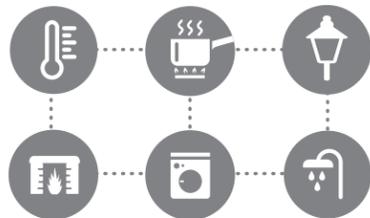


WHY PROPANE?

Keeping your family warm in any weather. Hot showers. Cozying up by the fire. Simmering a hearty stew on the stove.

Some of your home's most critical functions run at their best when they're fueled by gas. But not everyone has access to natural gas for their home. You may live in a more rural area, or perhaps a body of water or road blocks the pipeline.

That's where propane comes in. Propane is available virtually anywhere because it's stored on your property and delivered by a propane professional. And propane homes offer a number of advantages over all-electric homes.



PROPANE WORKS HARDER

Performance is the number one reason most people choose propane. After all, it can efficiently and effectively meet nearly all of your home's major energy needs, inside and out, from space heating and water heating to outdoor flame lighting and fire pits.

PROPANE SAVES MONEY

Propane appliances are extremely energy efficient, and can save you hundreds, possibly even thousands, of dollars in annual energy costs. And propane itself is abundant, and competitively priced compared with electricity, heating oil, or other fuels. Everyone wants to cut energy costs; propane will help you do it.



PROPANE IS UNBEATABLE CLEAN

For homeowners interested in lowering their carbon footprint, propane is a low-carbon alternative fuel that burns cleanly and produces significantly fewer greenhouse gas emissions than most other energy sources. In addition, propane is a non-poisonous, non-toxic fuel that won't contaminate soil or groundwater, making it safe to use anywhere.



GET THE MOST FROM YOUR PROPANE APPLIANCES

Everyone loves a lower utility bill. Here are some easy ways you can start saving on energy costs around your home.

HEATING

Thanks to your propane furnace, you don't have to deal with the cold spots common to electric heat pumps. To keep your furnace running efficiently, hire a professional for annual maintenance. And be sure to replace your air filters regularly. You can also slash utility bills with a programmable thermostat. Set it to use fuel more efficiently based on whether you're home or away. [Read more on page 10.](#)

WATER HEATING

With an Energy Star propane water heater, you could save about 16 percent in annual costs compared with electric and heating oil units. Be sure your water heater is set to no higher than 120 degrees. And consider a propane tankless water heater, which doesn't waste energy heating up a storage tank. [Read more on page 14.](#)

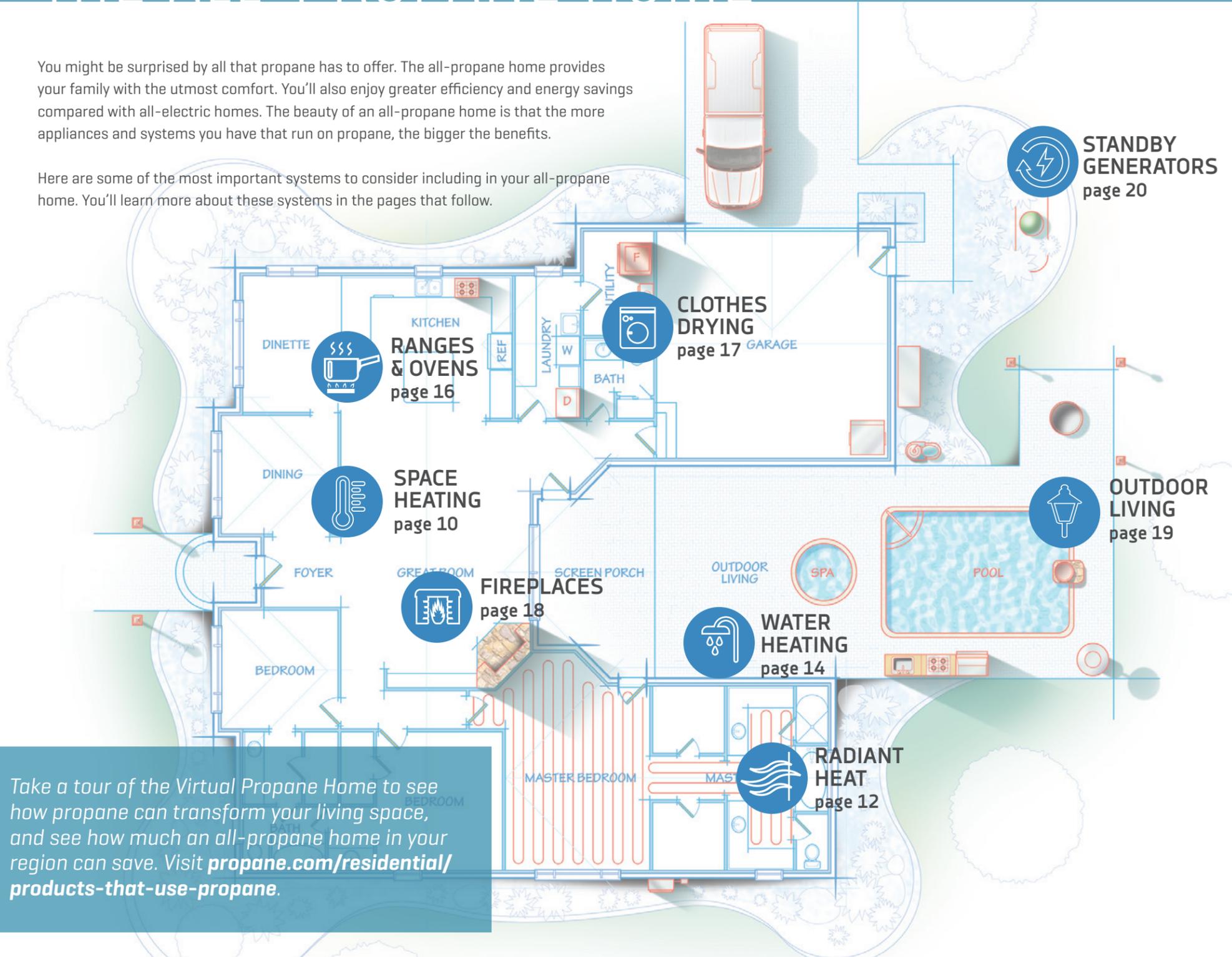
CLOTHES DRYING

Propane dryers heat up faster than electric dryers, and they're 20 percent less expensive to operate annually compared with electric-only dryers. Plus, some of the latest models offer a button to save energy on drying a load of clothes by running a longer cycle when you're not pressed for time. [Read more on page 17.](#)

THE ALL-PROPANE HOME

You might be surprised by all that propane has to offer. The all-propane home provides your family with the utmost comfort. You'll also enjoy greater efficiency and energy savings compared with all-electric homes. The beauty of an all-propane home is that the more appliances and systems you have that run on propane, the bigger the benefits.

Here are some of the most important systems to consider including in your all-propane home. You'll learn more about these systems in the pages that follow.



Take a tour of the Virtual Propane Home to see how propane can transform your living space, and see how much an all-propane home in your region can save. Visit propane.com/residential/products-that-use-propane.

PROPANE VS. ELECTRIC

There's a reason why many builders and architects across the country would never recommend an all-electric home: It's simply too expensive.

Propane appliances are extremely energy efficient and can save you hundreds, possibly even thousands, of dollars in annual energy costs while making you more comfortable.

Newport Partners LLC, an independent third-party research firm, conducted careful modeling analysis of home energy consumption and CO₂ emissions for two homes — one built with propane appliances and one built with electric appliances and systems. Here's what they found.

ALL-PROPANE HOME VS. ALL-ELECTRIC HOME

3,600-Square-Foot Home (cold climate)	All-Propane Home	All-Electric Home	Annual Savings with Propane
Energy Costs	\$4,873	\$5,409	\$536
CO ₂ Emissions (metric tons)	21.7	32.4	10.6
Home Energy Rating System (HERS) Index	64	83	The lower the score, the more efficient the home.

Source: Newport Partners LLC

Think of the HERS Index like an appliance's Energy Guide sticker, but for your whole house. It's an easy way to compare the performance of different homes. The lower the score, the more energy efficient the home. All-propane homes have lower HERS ratings than all-electric alternatives.

For homeowners interested in lowering their carbon footprint, it's clear that all-propane homes produce significantly fewer greenhouse gas emissions than all-electric homes. In the example above, the difference adds up to 10.6 metric tons of CO₂ per year. For comparison, an average car driven in the United States emits 5.1 metric tons of CO₂ each year.

YOUR PROPANE PROJECT

YOUR PROPANE STORAGE



You're ready to build or remodel your dream home. And you're excited about the performance and efficiency that propane amenities have to offer. What's next?

At the budgeting and planning stage, your builder, remodeler, or architect may recommend propane systems and include them automatically in the plans. If not, be sure to state your preference for the superior propane system when electric just won't cut it.

Using propane won't throw a wrench into the schedule — in fact, it may speed it up. Since you're not at the mercy of a public utility, your contractor can work with a local propane retailer to install the propane system where and when it's needed.

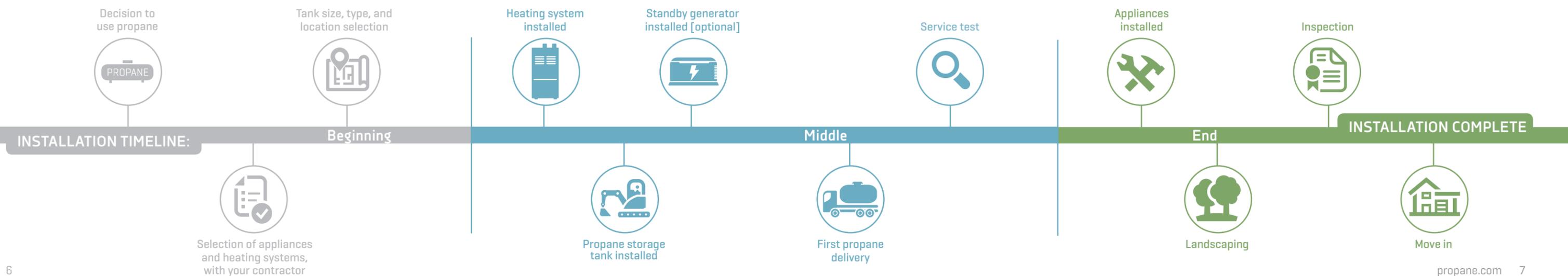
REPLACEMENT PROJECTS

Remodeling your home is a great time to consider replacing outdated technology like electric water heaters or boilers that use heating oil. You'll enjoy the improved performance and space savings of a high-efficiency propane system, and it's much easier to make the switch proactively than to wait until the unit fails.

You'll be relieved to know that switching to propane won't mean days without hot water. Your contractor can install your new system [as well as your propane storage, if needed] and have it inspected and tested before switching over from your old unit, minimizing any disruption. If you're switching from heating oil, your old oil tank can be decontaminated and permanently taken out of service.

YOUR PROPANE PROJECT TIMELINE

Every project is different, of course, but here's how propane typically fits into the construction of your home.



Propane is piped to your home in one of two ways. It can either be stored on your property in one or multiple propane tanks, or it can be delivered through a community system from a centralized storage system. If you're connected to a community system, your home will be metered and billed for your propane usage, just as natural gas is.

If your home will have its own propane storage, your contractor and propane professional can help you navigate any decisions you need to make. They'll provide guidance on appropriately sizing the tank — the average size is 500 gallons, but it may need to be larger or smaller depending on the propane systems installed in your home. There are a couple other options you may like to know about.

OWNING VS. RENTING

The most common option for your propane tank is to rent it from your propane supplier. The main benefit? You're not responsible for maintaining the tank, and if it ever needs to be repaired or replaced, you're not on the hook. Owning the tank, on the other hand, gives you the freedom to shop multiple propane suppliers. But buying, burying, and having a professional maintain your tank can add to the final cost of your home.

UNDERGROUND VS. ABOVEGROUND

Reviewing the tank location options with your builder and propane retailer is a great opportunity to make your aesthetic preferences known. In some cases, you may have the opportunity to bury the tank out of site, where it can be accessed by a small dome. Building and safety codes and ease of access will also govern the final choice.

At his Rockhouse project, architect John Grable designed a limestone wall to attractively accent and enclose a propane tank.



Whether or not your tank is buried, the area around your tank can be a fun opportunity for creative landscaping. San Antonio-based architect John Grable, for instance, likes to enclose a tank with a native stacked fieldstone wall or bench seat to add personality to a home's outdoor space.

PROPANE DELIVERY

When you move, you need to start or update your account with the electric, gas, or cable company. Propane works the same way. Whether you're building or remodeling, you'll choose a propane provider with your contractor and schedule a time for your tank to be placed. Your service technician will typically provide a Propane 101 lesson: how your tank works (and how to shut it off), what propane smells like in case of a leak, and other safety reminders.

While a small amount of propane will be added to the tank for testing when the tank is first installed, your first propane delivery will actually take place later. A few reminders:

- Make sure your delivery technician has a clear path by clearing away shrubs or other obstacles.
- If there's snow, shovel any driveways or paths the technician will need to access.
- Provide any keys or gate codes to the propane company, and arrange for pets to be inside if needed.
- Most companies schedule deliveries from 8 to 5 to minimize disruptions, though deliveries may start earlier in busy markets or times of the year.
- You'll usually receive a receipt, perhaps on your tank or doorknob, with delivery information.



Find local propane providers at propane.com/fpr.aspx.

HOW MANY GALLONS WILL I USE?

One of homeowners' most frequent questions about propane is how much they'll use. If you have 100 gallons left in the tank, how long will it last? The answer varies depending on which systems are installed in your home, as well as your climate region and the time of year. Here are some general annual guidelines:

TYPICAL PROPANE CONSUMPTION (GALLONS/YEAR)

Climate Region	High-Efficiency Space Heating	High-Efficiency Water Heating	Cooking	Clothes Dryer	High-Efficiency Direct-Vent Fireplace	TOTAL
Warm	22-79	112-119	~17	~28	~16	194-258
Moderate	71-433	124-153	~17	~28	24-31	268-662
Cold	620-790	490-620	~17	~28	39-55	991-1844

Source: Newport Partners 2011 Energy and Environmental Analysis of Propane Energy Pod Homes. Complete study available at buildwithpropane.com/Research-and-Training/The-Propane-Energy-Pod/. Findings are based on climate averages across 16 locations developed through building energy simulations. Assumptions include a 2,400-square-foot home built to the 2009 IECC, and the use of high-efficiency propane heating and water heating equipment, moderate efficiency propane direct-vent fireplace, and standard efficiency propane cooktop, oven, and clothes dryer. Warm and moderate climates were assumed to use hybrid air source heat pumps with propane furnace backups for space heating.

REBATES & INCENTIVES

Sure, it's your dream home, but that doesn't mean you need to pay premium prices for every appliance.

In fact, you may be able to qualify for rebates and tax incentives to offset the purchase costs of new propane furnaces, water heaters, and other appliances. Since the efficiency of propane appliances already makes them a smart economic choice for your family, the savings begin to stack up quickly. Here's where to look:

SAFE INSTALLATION REBATES

Some local propane companies offer rebates for the safe installation of propane appliances. Contact your local propane retailer for more details on how to qualify for these rebates. Check out the programs in your state at propane.com/residential/programs-and-incentives/.

GOVERNMENT AND TAX INCENTIVES

Some states and localities provide tax credits, rebates, grants, and other incentives for propane projects. And in recent years, the federal government has offered tax credits, including up to \$500 for installing qualified energy-efficient upgrades.

The tax rules are always being rewritten, so check out these sites for the most up-to-date details.



ENERGY STAR
www.energystar.gov

DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (DSIRE)

www.dsireusa.org



HOME HEATING: DON'T GET LEFT IN THE COLD



The warm, comfortable heat of a propane furnace simply can't be matched by other heating systems when it comes to comfort.

The mechanics of a home heating system can be intimidating, so it's no wonder most homeowners opt to deal only with the user-friendly thermostat. But one thing is simple: The wrong type of heating system can leave your family uncomfortable.

"We're putting as much insulation as we can into walls, floors, and ceilings, but we're also seeing lots of glass with

larger windows and window walls," says custom builder Andy Stauffer of Stauffer & Sons Construction in Colorado Springs, Colorado. "That can mean huge disparities in thermal performance, so comfort comes down to getting the temperature consistent throughout the living space without hot and cold pockets."

PROPANE DELIVERS COMFORT

Propane furnaces are the best choice for eliminating those cold pockets in your home during wintertime. Why? The difference is in the temperature of your heat.



DID YOU KNOW?

In moderate and cold climates, the "heat" from an electric heat pump will be below our body temperature of 98 degrees about 60 percent of the time during the heating season.

Consistent Comfort. Propane furnaces provide the same warmth no matter how cold it is outside. A propane furnace is simply heating the indoor air with propane combustion, so it supplies a steady, consistent heating temperature of 115 to 125 degrees Fahrenheit, regardless of outdoor temperatures. That heat mixes with ambient air in the home to create comforting warmth.

Heat When You Want It. Not only is heat from a propane furnace drier and cleaner, it also responds quickly to your thermostat, says Ted West, director of sales at Liberty Propane in Philadelphia. "A propane furnace will get you to your desired temperature quicker and hold that temperature."

Electric Let-Down. Electric air source heat pumps (ASHP) or ground source heat pumps (GSHP), also known as geothermal systems, attract a lot of attention for their energy-efficient operation, but they can disappoint when the weather turns colder. Heat pumps have Mother Nature working against them. They use heat exchangers to extract heat from outdoor air or loops buried in the ground. But if outdoor temperatures are very cold, there's less heat to extract in the first place. The result is an uncomfortable indoor air temperature, often below our 98-degree body temperature, that doesn't feel warm at all. This is especially disappointing for homeowners who have paid the high cost of installation for a geothermal system.

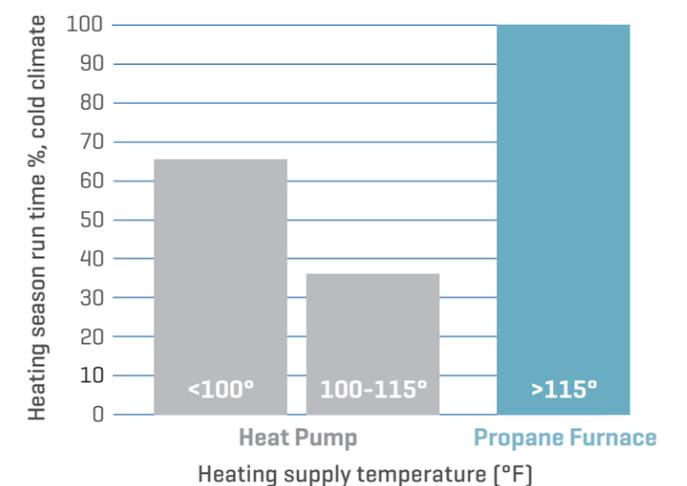
HYBRID SOLUTION

For homeowners interested in the energy-saving opportunities of geothermal or heat pump installations, propane can help counteract the comfort problems. Hybrid heating systems combine ASHPs or GSHPs with gas-powered furnaces that take over the load when outdoor air can't provide enough heat to maintain comfort. These systems also help eliminate the need for backup electric resistance or baseboard heating, which can be inefficient and expensive to operate.

Whatever type of system you choose for your home, propane can help ensure the comfort of your family and your budget.

WINTER WEATHER COMFORT

How warm is your heat? In mixed and cold climates, the heated air from a heat pump will be below your body temperature (and likely feel cool) about 60 percent of the time during the heating season. Propane furnaces, by contrast, provide heated air consistently above 115 degrees Fahrenheit, above the comfort threshold.



Source: Newport Partners 2013 Performance Comparison of Residential Heating Systems: Energy, Economics, Emissions, and Comfort. Complete study available at buildwithpropane.com/Research-and-Training/Compare-Space-Heating-Systems/. Findings are based on an energy simulation of a new house in Des Moines, Iowa [DOE climate zone 5, a "cold" climate].

RADIANT HEAT WARMS THROUGH AND THROUGH



Possibly the most comfortable way to heat a home comes in the form of radiant heat.

Unlike forced air systems that use blowers and ductwork to bring warm air into a space, propane-powered radiant systems take advantage of heating elements that, by definition, radiate heat into the room. The result is heat that penetrates the structure of the home, not just the air inside it.

“People who have lived with radiant heat never want anything else,” says Mark Patterson, owner of Patco Construction, Sanford, Maine. “The furniture is warmer, the floors are warmer. It’s the most comfortable heat imaginable.”

COMFY COZY

Some homeowners might be familiar with electric floor warming or baseboard heating systems. These also offer radiant heat, but heating a whole house with electricity can be expensive, so save those installations for smaller spaces; for example, they can take the edge off a chilly bathroom floor.

For whole-house comfort, radiant heating systems are sometimes referred to as hydronic heating because of their use of liquid as a vehicle for heat transfer. Starting with a propane-powered boiler, the liquid in the system is heated and then runs through tubing either in wall-mounted or baseboard radiators, or embedded in a concrete slab, allowing the heat to warm the room from the floor up.

Smart design of radiant heating layouts helps counteract potential cold spots in a room. For instance, installers will place radiant heat tubing in closely spaced runs near window walls, sliding doors, and similar spaces, concentrating the radiant heat in areas where cold spots or drafts could occur.



DID YOU KNOW?

In addition to creating a cozy atmosphere by seeping into floors, walls, and furniture, homeowners will appreciate that radiant heat doesn’t blow dust and allergens into the room every time the system kicks on.



BRING IT TO A BOIL

For systems like radiant heating that require a boiler, industry experts agree that propane is the way to go for a variety of reasons.

- Propane boilers offer top-notch efficiency levels and significant CO₂ emission reductions compared with heating oil boilers.
- The propane market has had a steadier price structure than heating oil.
- Oil boilers can leak, causing inefficiencies, health and fire hazards, and soil contamination.
- Propane is a non-toxic and highly efficient fuel, yielding safer and more comfortable operation than heating oil.

WHAT TO KNOW ABOUT WATER HEATERS

Water heaters are often the second largest energy user in the home. Here's how to choose an efficient one.

New technologies are bringing remarkable improvements to the efficiency with which we make and move hot water in our homes. These are important changes as homeowners look for ways to improve the energy efficiency of their homes, reduce their carbon footprints, and lower their utility bills. Consider these options when choosing your next water heater.



GOING TANKLESS

Among the most popular innovations in water heating in recent years is the tankless water heater. These gas-powered units:

- Don't require a bulky storage tank.
- Never run out of hot water.
- Hang on the wall, taking up a smaller footprint than traditional water heaters.
- Help improve energy efficiency and lower utility bills.

These systems are often called "on-demand" water heaters because they only turn on when there's a call for hot water. This means fuel isn't being used when it isn't needed, unlike with storage water heaters that must keep 50 gallons of water [or more] hot and ready to use at all times. Additionally, properly sized tankless units can more easily supply hot water for multiple simultaneous jobs — such as when the kids need baths at night, but you also have to wash dishes or do a load of laundry.

SKIP THE WAIT

Tired of running up your water bill while you wait for the water to get hot? Ask your contractor about recirculation systems. These systems pump hot water through your house at the times you're most likely to use it, so you get your hot water right when you need it.



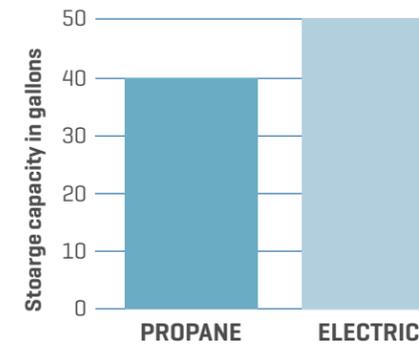
DID YOU KNOW?

Do you turn your storage water heater off when you go to work, head to bed at night, or go on vacation? Those are just some of the precious hours of fuel you can save by switching from storage water heating to tankless.

DOWNSIZING YOUR TANK

Storage water heaters remain popular for their lower price points. And by choosing propane over electric, you can get the same amount of hot water while using less space in your utility room. For example, to deliver about 70 gallons of hot water in the first hour, a home would need a 40-gallon propane unit or a 50-gallon electric unit. Plus, Energy Star propane units save about 13 to 20 percent in annual energy costs compared with standard electric and heating oil units.

STORAGE TANK SIZE NEEDED FOR 70-GALLON FIRST-HOUR DELIVERY



Source: First Hour Rating data taken from the Air-Conditioning, Heating, and Refrigeration (AHRI) Directory of Certified Product Performance, for a 50-gallon storage tank propane water heater and an 80-gallon electric storage tank water heater. ahridirectory.org.

TIME TO PULL THE PLUG?

Most homeowners wait until their water heater fails before they replace it, which can result in hasty purchasing decisions made under pressure. Keep an eye out for these indications that your water heater is at the end of its usable life:

- The water heater leaks.
- Your faucets deliver hot water erratically or not at all.
- You see rust in your water or hear the heater rumbling (indications of sediment in the storage tank).
- The unit is more than 10 years old.

Answer 5 easy questions to see if it's time to pull the plug on your old water heater, and start shopping for a newer, more efficient propane system. Take the quiz at knowyourwaterheater.com.

If your water heater meets any of these criteria, start shopping around for a new model. That way you can replace it at your own pace, or at least be prepared in the event of a failure. And if you're upgrading an old electric heater, you'll have plenty of time to pull the plug and switch to a propane model that performs better while saving space and energy.

FUEL OPTIONS AND EFFICIENCY

As you shop, pay attention to the bright yellow label you'll see on the water heater units to find a lot of important information, including the energy factor (EF) and annual cost to operate. A unit that puts all of its fuel toward heating water with no loss of efficiency would have an EF of 1; the higher the number, the more efficient the unit.

Standard gas water heaters usually have a top EF of 0.7, while more efficient condensing gas water heaters and tankless units have EFs from 0.8 to 0.96. Electric resistance water heaters usually run between EF 0.9 and 0.94.

That may make it seem like electric water heaters are a highly efficient choice, but EF can't be used to compare water heaters using different energy sources. Instead, look at how much the water heater will cost to run each year. Water heater labels should include both the EF and the estimated annual operating cost for your reference.

DREAM KITCHEN? FLAME ON LOVE LAUNDRY DAY



DID YOU KNOW?

While gas cooking appliances generally cost slightly more than their electric counterparts, the cost can be offset by opting for an electric oven and a gas cooktop, or a dual-fuel range that incorporates both of those options into a single unit.

The reasons behind these trends really come down to visibility and precision for the home cook. “We see gas as a very important market for cooktops and ranges,” says David Nichols, vice president of products for Dacor. “Our customers really appreciate that flame on a gas cooktop or a dual-fuel range.” Nichols shares a number of reasons that home chefs love gas burners:

- The flame is a visual indication that the cooktop is on and working.
- Gas burners offer nearly unlimited settings between a low simmer and a high boil, as opposed to eight or 10 discrete heat levels found on most electric cooking surfaces.
- Gas flames apply heat directly to the pan you’re cooking in, while electric cooking elements heat the surface first, then the pan.
- Pans and their contents respond faster to temperature changes with gas heat.
- Gas cooktop grates actually cool faster than the radiant elements of an electric cooktop.

For the most part, any gas appliance can be outfitted to use either propane or natural gas. Nichols says Dacor manufactures separate models depending on the fuel type, while other manufacturers provide kits that let installers retrofit appliances for propane.

Everyone should experience the joys of cooking with gas, including you.

The phrase “cooking with gas” is ingrained in our vocabulary as a marker for productivity and success. And the speed and efficiency of gas has inspired more than a third of homeowners [about 37 percent] to opt for gas cooking appliances based on shipment data from the appliance industry. Gas models account for nearly 43 percent of the ranges shipped in 2015, and shipments of gas cooktops overtook electric models in 2013, now making up 55 percent of the cooktops on the market.

Put away that ironing board. Propane-powered dryers are gentler on your clothing, dry items faster, save money, and produce fewer wrinkles.

If time seems to slow down while you’re waiting for a load of laundry to finish, you probably have an electric dryer. Though their plug-and-play design makes electric dryers easy to purchase and install, their downfall comes in how much electricity it takes to actually dry a load of laundry. As sensors inside the machines measure how much moisture is left in a load, those drying times can reset to the point where a 40-minute cycle turns into an hour.

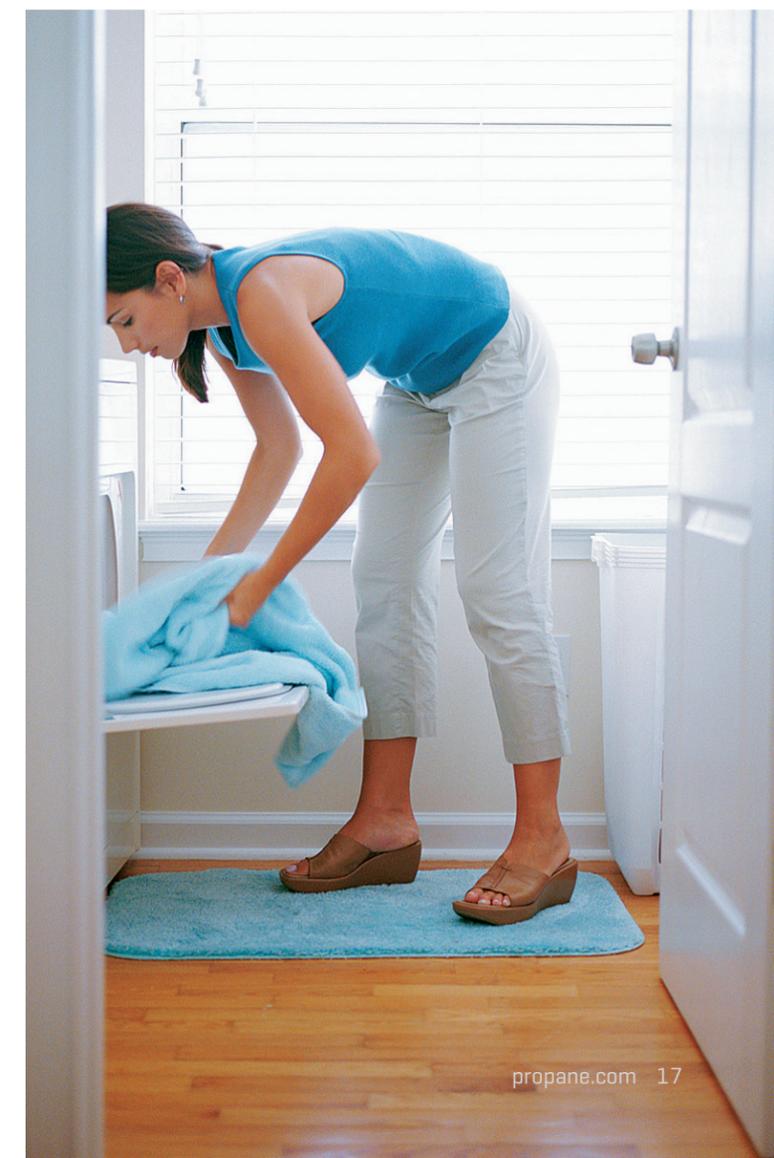
Thankfully, propane’s highly efficient heat can help you earn that time back — and some money as well.

Savings Hot Spot. According to California’s Consumer Energy Center, an electric dryer costs 30 to 40 cents per load to run, compared with 15 to 20 cents per load in a gas dryer. This looks like a 50 percent savings on its face, but gas dryers do require some electricity to operate the internal motor. Overall, propane dryers are about 20 percent less expensive to operate annually compared with electric-only models. Gas dryers generally cost about \$100 more than their electric counterparts, but the annual savings helps make up that difference quickly.

New construction or a remodel situation are the ideal times to swap out an electric dryer for propane, especially if the project plans to include propane lines for other functions in the home. Generally, the more propane appliances in a home, the more economical the investment overall. And by adding a propane dryer to your laundry list, you can take advantage of some great new technologies too:

Steam Drying. Many newer gas clothes dryers are outfitted with convenient steam features. This is a perfect accompaniment to propane, which already dries clothes with a more moist heat than electric dryers.

Smart Features. You can also keep your dryer running with the tap of an app. Whirlpool, LG, and GE all have dryers that let users monitor their laundry cycles from their smartphones, and even re-engage drying cycles remotely to keep wrinkles from forming



HEAT FOR THE HEARTH

FUEL YOUR FUN



The fireplace is a permanent and irreplaceable fixture in American homes.

More than half of all homes have a fireplace [57 percent, according to the Hearth, Patio & Barbecue Association]. They're so beloved for both function and aesthetics that many homeowners now mount their flat-screen TVs above the mantle rather than obstruct the fireplace below.

DESIGNED FOR EFFICIENCY

While typical wood-burning fireplaces have a higher heating output than direct-vent gas fireplaces, most of the heat goes up the chimney. This makes open wood burners highly inefficient in an age when maximizing energy use is essential. Meanwhile, electric fireplaces offer only a small percentage of the heat output that a gas fireplace can offer, making them less cost-effective.



DID YOU KNOW?

Some gas fireplaces offer the option of sharing their heat with other rooms in the home through venting.

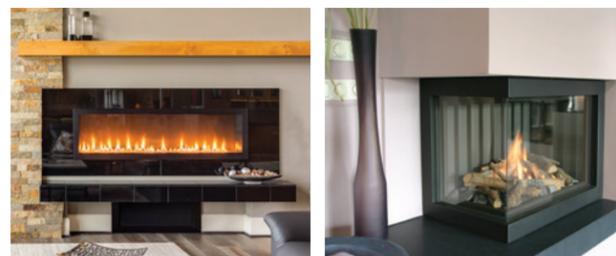
To get the most heat for your buck, a propane-fueled gas fireplace is ideal.

- Balanced flue systems bring in outdoor air for combustion, then return it outside, rather than using indoor air and exhausting it up the chimney.
- Many gas fireplaces offer adjustable heat output for personal comfort.
- Gas fireplaces can turn on with a switch, remote control, or even your smartphone.
- Maintenance and monitoring is reduced since gas fireplaces require no wood logs and won't create ash and soot.

DESIGNED FOR YOU

Whether your home décor style is traditional or modern, there's a gas fireplace available to complement it.

Traditional fireplaces. These replica options offer large viewing areas, realistic log sets, and the feel of a wood-burning fire. Design options for frames, surrounds, and mantles abound.



Linear fireplaces. These popular modern designs [above left] do away with gas log sets in favor of stones or crushed glass surrounding a string of fire.

See-through fireplaces. Two- and three-sided fireplace options [above right] let homeowners enjoy the warmth and glow of a fire from multiple areas of the home. Compact sizes are also available as stylish additions to master suites and smaller spaces.



The weather is perfect, the kids are playing, the guests are arriving.

The only thing that can kill the mood of a great backyard get-together is a grill that won't fire up. Thankfully, a professional propane installation can go way beyond the grill, powering the backyard of your dreams.

ULTIMATE AL FRESCO

More than 60 percent of homeowners who grill outdoors choose a gas grill for its fast heating and the added benefit of fewer greenhouse gas emissions than charcoal. Opting for a built-in design with a dedicated propane line eliminates the inconvenience of bulky 20-pound tank replacements at odd intervals.

Bob Knight, president of Paul Homes in Cape Coral, Florida, says the built-in grill is just the beginning of what propane can do for a "summer kitchen." "We install the grill, a granite top, bar sink, fridge — they're all built in and can withstand the weather," he says. Indeed, the outdoor kitchen has become the entertainment heart of the backyard.

FIREPLACES & FIRE PITS

A cold beer or a nice glass of wine makes a perfect accompaniment to another popular propane-fueled backyard feature: the fire pit. Knight says fireplaces and

fire pits are so popular that some of his clients install one unit in their initial design, then add stubbed propane lines in other areas for future fire features. These could include traditional fireplaces, pizza ovens, or restaurant-style propane patio heating.

FIRE & WATER

In the same way fireplaces and fire pits extend the season for enjoying the backyard, propane-powered pool heaters extend swimming season well beyond Labor Day weekend. Pool and spa heaters are being built with more efficiency in mind, with some models reaching 95 percent efficiency and delivering twice the heating rate of electric heat pump water heaters. Manufacturer Inyo Pools notes that a gas heater will heat a pool five to seven times faster than a heat pump, will cost less in doing so, and will work when air temperatures are below 40 degrees, making them suitable for installation in northern states.



DID YOU KNOW?

Depending on the fixture, a patio heater can raise outdoor air temperature between 10 and 30 degrees across a space up to 20 feet in diameter.

DON'T GET LEFT IN THE DARK



Even during a power outage, your family's peace of mind is never in doubt when you have a propane standby generator.

Life is more connected now than ever before. A 2015 New Jersey Institute of Technology survey found that 45 percent of Americans work from home, and market research suggests North American homes have an average of 13 connected devices each. Smart thermostats are among them, with the North American market doubling from 2014 to 2015, and about 400,000 electric cars are parked in American garages. So what happens when the grid that powers our electronically charged lifestyles fails?

JD Power & Associates estimates that the average extended power outage lasts eight hours, but severe weather could extend outages by days or weeks. Research from energy reporting agency Inside Energy found that between 2000 and 2014, the average number of reported power outages per

year doubled every five years. The power grid is aging, severe weather is happening more frequently, and our homes and their contents are in jeopardy.

Enter propane. Whether it gives you the convenience of charging your phone or opening the garage door during a bad storm, or helps salvage the food in your refrigerator and keeps your sump pump running during an extended power outage, a standby generator can be your propane-powered lifesaver.

POWER WHEN YOU NEED IT

A permanent propane standby generator is at the ready to keep the home running smoothly under any conditions. The concept is simple. The generator connects to a transfer switch that is, in turn, connected to the home's electrical panel. When the transfer switch loses grid power, it presses the generator into service. Fueled by the propane line, the generator powers the electrical panel until the transfer switch identifies that grid power has been restored.

When choosing a generator for your home, talk with your installer about what you need your equipment to do while the power is out.

- Generators come in a variety of sizes, measured in kilowatts [kw].
- Smaller units around 8 kw can power essential circuits, such as a few lights, the sump pump, refrigerator, and HVAC.
- A full-size unit could handle 35 kw or more, letting your entire house operate as usual from top to bottom.
- Weigh your needs with your budget, as prices rise the more kilowatts you add.

PROPANE OUTLASTS THE ALTERNATIVES

Installed on a slab outside the house, standby generators are about the size of an air conditioner, and offer a number of benefits over alternative options.

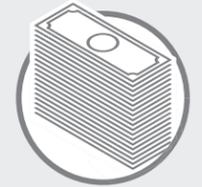
- Gas-powered generators are built to withstand severe weather and engage automatically.
- Propane doesn't degrade over time, unlike diesel or gasoline, making it an ideal standby power fuel.
- Homeowners never have to worry about going outside to start or refuel the generator in the midst of a dangerous storm.

If you're thinking of getting a portable generator to power your home in a storm, think again. These units are best for small jobs and outdoor projects — not powering a whole house — and must be ventilated

well to avoid carbon monoxide buildup. They also require manual refueling, and if power is out because of a major storm, area gas pumps might also be out of power.

Another power option gaining attention is battery-powered home backup. In homes with these systems, large batteries charge via the grid, then kick on when the power goes out. However, battery backups cannot always deliver power at the rate that connected appliances demand it. Propane-powered generators produce steady power for the duration of an outage, but battery systems might only deliver power to certain circuits at any given time.

A properly sized propane standby generator can be installed with a new construction home or as a retrofit to an existing home, making their convenience available to everyone. Next time stormy skies darken your doorstep, your safely protected home will be an oasis of power in a blacked-out neighborhood.



A power outage costs a family an average of

\$1,250

FINANCIAL COSTS OF POWER OUTAGES:

- Spoiled food.
- Eating at restaurants.
- Damage to electronics and homes.
- Lost wages from home businesses.
- Hotels and temporary relocation costs.

EMOTIONAL COSTS OF POWER OUTAGES:

- Stress on families.
- Financial demands.
- Dangerous excesses of heat or cold.
- Lack of phones, email, and communication.
- Inability to cook.
- Loss of showers and bathrooms.

PROPANE SAFETY

When it comes to gas appliances, safety is a top priority. If you smell gas in your home, follow these steps:

- 1 NO FLAMES OR SPARKS.** Immediately put out all smoking materials and other open flames. Do not operate lights, appliances, telephones, or cell phones. Flames or sparks from these sources can trigger an explosion or a fire.
- 2 LEAVE THE AREA IMMEDIATELY.** Get everyone out of the building or area where you suspect gas is leaking.
- 3 SHUT OFF THE GAS.** Turn off the main gas supply valve on your propane tank if it is safe to do so. To close the valve, turn it to the right [clockwise].
- 4 REPORT THE LEAK.** From a neighbor's home or other nearby building away from the gas leak, call your propane retailer right away. If you can't reach your propane retailer, call 911 or your local fire department.
- 5 DO NOT RETURN TO THE BUILDING OR AREA** until your propane retailer, emergency responder, or qualified service technician determines that it is safe to do so.
- 6 GET YOUR SYSTEM CHECKED.** Before you attempt to use any of your propane appliances, your propane retailer or a qualified service technician must check your entire system to ensure that it is leak-free.

SAFE APPLIANCE INSTALLATION

Installing or repairing gas appliances — or undertaking any gas-related project — is not something to take lightly. It's something only a qualified professional should handle.

SAFE GRILLING

Don't forget: The most important ingredient to any grill-out is safety. Check out these important tips to prevent injury and keep propane grilling enjoyable.

- 1 FOLLOW THE MANUFACTURER'S INSTRUCTIONS.** Whether it's assembly, use, maintenance, cleaning, or storage, make your grill manufacturer's instructions your go-to resource for safe grilling.
- 2 POSITION THE GRILL IN A SAFE LOCATION.** Keep your grill outdoors and at least five feet from the house on a level surface that is clear of outdoor furniture, overhead trees, or other potential fire hazards.
- 3 CHECK FOR LEAKS.** Use a soapy water solution to check connections for leaks. Expanding bubbles indicate a leak. Follow this procedure every time you replace a cylinder.
- 4 FOLLOW PROPER LIGHTING PROCEDURES.** Follow the manufacturer's lighting instructions, and with all grill models, keep the lid open and don't lean over the grill when lighting it.
- 5 FOLLOW PROPER RELIGHTING PROCEDURES.** If your flame goes out, turn off the gas and refer to your owner's manual. At a minimum, with all grill models, keep the lid open and wait at least 15 minutes before relighting.

For more information, visit www.propane.com/safety/safe-grilling/.



WINTER WEATHER SAFETY

Staying comfortable and safe during the winter is as easy as planning ahead. Go through the cold weather preparation checklist.

- 1 MAINTAIN AN ADEQUATE SUPPLY OF PROPANE IN YOUR TANK.** A severe winter storm can hinder additional propane deliveries.
- 2 STAY IN REGULAR CONTACT WITH YOUR PROVIDER.** Doing so gives you both enough time to arrange a refill long before you run out of propane.
- 3 GET IN TOUCH WITH YOUR PROPANE PROVIDER IMMEDIATELY IF YOU RUN OUT OF PROPANE.** A propane provider or qualified service technician must check your system for leaks before turning the gas back on.
- 4 USE ENERGY WISELY.** Winter storms and the resulting inaccessible roads may make propane deliveries impossible for several days. Use energy conservatively by setting your programmable thermostat to as low as is comfortable — possibly a few degrees cooler at night and when nobody is home. Close off any rooms that don't need to be heated.
- 5 KEEP THE PATH TO YOUR PROPANE TANK CLEAR.** A clear path helps the delivery drivers get to your tank easily, fill it quickly, and move on to the next customer.
- 6 ALLOW YOUR APPLIANCES TO VENT PROPERLY.** If it is safe to do so, clear snow and ice away from outdoor vents, chimneys, and flues to prevent blocking any ventilation.
- 7 CLEAR SNOW AND ICE FROM AROUND YOUR PROPANE TANK.** This includes regulators, regulator vents, piping, tubing, and valves. Use a broom instead of a shovel to prevent damage to your propane system components.



- 8 IF YOU SMELL GAS, TAKE THE RIGHT STEPS.** Immediately put out all smoking materials and other open flames. Do not operate lights, appliances, telephones, or cellphones. Get everyone away from the home or area where you suspect gas is leaking. If safe to do so, close or shut off the main gas supply valve by turning it to the right [clockwise]. Call your propane provider immediately from a safe place to report the leak. If you cannot reach your propane provider, call 911. Do not return to the area until a propane provider, emergency responder, or qualified service technician gives the OK.
- 9 NEVER USE A STOVE OR BRING YOUR GAS GRILL INDOORS FOR SPACE HEATING, EVEN DURING A POWER OUTAGE.** Only use appliances indoors that are designed and approved for that purpose. Never store, place, or use a propane cylinder indoors or in enclosed areas. Never use outdoor propane-powered appliances indoors or in enclosed areas. Without proper ventilation, deadly carbon monoxide [CO] fumes produced can build up.
- 10 OPERATE PORTABLE GENERATORS WITH CAUTION.** Never use a portable generator [gasoline, diesel, or propane] indoors or in enclosed areas. Doing so can result in carbon monoxide [CO] poisoning or death.

For more information, visit www.propane.com/residential/safety/winter-weather-safety-tips/.

POWER OUTAGE SAFETY

If your home uses propane, there are 10 simple steps you can take to keep your family safe and avoid potential dangers during a power outage.

- 1 CREATE AN EMERGENCY PREPAREDNESS PLAN AND REVIEW IT WITH EVERYONE IN YOUR FAMILY.** Post a list with contact information for your propane retailer and emergency services (fire department, etc.) along with instructions for turning off propane, electricity, and water. If you do need to turn off your propane, contact a service technician to inspect your propane system prior to turning it back on.
- 2 CONSIDER INSTALLING UL-LISTED PROPANE GAS DETECTORS AND CARBON MONOXIDE DETECTORS.** These detectors provide you with an additional measure of security.
- 3 PREPARE A FAMILY DISASTER SUPPLY KIT** with several days' worth of water and canned foods along with a can opener, extra clothes and blankets, flashlights, and batteries. Include a battery-powered radio so you can stay informed as conditions change.
- 4 IF A POWER OUTAGE OCCURS DUE TO A SEVERE WEATHER-RELATED CONDITION, TUNE IN ON A BATTERY-POWERED RADIO** for instructions from local authorities.
- 5 USE EXTREME CAUTION WHEN OPERATING PORTABLE GENERATORS.** During power outages, some people may choose to use a portable generator, allowing them to keep food from spoiling, computers and other appliances working, and, in some cases, life-supporting medical devices operating. Never use a portable generator (gasoline, diesel, or propane) indoors or in an enclosed area such as a basement, garage, shed, or tent. This can result in carbon monoxide poisoning or death.

- 6 NEVER USE OUTDOOR PROPANE APPLIANCES INDOORS OR IN ENCLOSED AREAS,** particularly during a power outage. This can result in carbon monoxide poisoning or death. These include such appliances as outdoor portable heaters, barbecue grills, and portable generators.
- 7 IF SEVERE WEATHER-RELATED CONDITIONS CAUSE THE POWER OUTAGE, IT IS IMPORTANT TO USE CAUTION IN THE AREA SURROUNDING YOUR HOME.** Check the entire area for downed power lines, damaged gas lines, or damage to your propane tank.
- 8 INSPECT YOUR PROPANE APPLIANCES FOR WATER OR OTHER DAMAGE,** if it is safe to do so. A power outage can cause appliances such as a refrigerator or freezer to leak water, or a sump pump to stop working, which may cause propane appliances to get wet. If the appliances have electric components and have been exposed to water, they can create a fire hazard. Do not ever turn on a light switch, use any power source, or inspect your household appliances while standing in water. This can result in electrocution.
- 9 SCHEDULE A TIME FOR A QUALIFIED SERVICE TECHNICIAN TO PERFORM A COMPLETE INSPECTION OF YOUR PROPANE SYSTEM** if you suspect any of your propane appliances, equipment, or vehicles have been under water or damaged, or you have turned off your gas supply. Never use or operate appliances, equipment, or vehicles, or turn on the gas supply, until your system has been inspected by a qualified service technician. Do not attempt repairs yourself.
- 10 EXERCISE SOUND JUDGMENT.** As with any challenging situation, your composure during power outages and other severe weather events will ensure you don't take unnecessary risks or pose any additional dangers to your family and home.

For more information, visit www.propane.com/residential/safety/propane-safety-and-power-outages/.