



# The Importance of Natural Gas Availability

## *When Choosing a Restaurant Site*

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If you're thinking of opening a new restaurant or relocating your existing establishment – have you researched the on-site availability of natural gas for your new location? Along with location traffic counts and accessibility, having natural gas available can be one of the most important business factors affecting your decision. That's because natural gas will keep your restaurant operating at peak efficiency with top production and bottom line profitability.

The availability of natural gas and including it into your building plans will pay dividends year in and year out. This article will discuss the various ways in which you can get the full benefits when using gas as your primary energy source.

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### Step One

**Contact your local natural gas utility!** Although this may sound obvious, I can cite many cases during my 25 plus year career as a gas utility representative where checking on gas availability was assumed and you can only guess what may have happened as a result. So make sure that someone during the planning stage of your site selection makes that initial local natural gas utility inquiry. And if you're making this inquiry from outside of the locality where your new restaurant will be located, you can rely on the Gas Foodservice Equipment Network (GFEN) to provide you with up-to-date contact information throughout North America.

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### Step Two

**How much gas will you require?** An early review of the types of equipment you will need for cooking, water heating and space conditioning and then maximizing the use of natural gas as the energy source to power that equipment will go a long way to maximizing your cooking efficiency, hot water production and building comfort for your guests and employees. This may also be a good time to consider if outdoor dining is a possibility now or in the future as you may have to take into account added outdoor space heating load.

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### Step Three

**Why choose natural gas for cooking?** There have been many surveys taken over the years and each has favored gas as the top choice of professional chefs. When asked why they favor gas over electric, the same answers were heard repeatedly:

- *Greater control over temperature;*
- *Faster cook times;*
- *Immediate and visual heat (range top burner);*
- *It costs less to operate.*

The popularity of network and local television cooking shows has also been a factor by subliminally promoting gas for cooking on the home front. After all, if all those celebrity chefs create all that fine cuisine on their television programs with gas equipment, then shouldn't you be cooking with gas too?

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### Step Four

**Why choose natural gas for water heating?** When it comes to operating your foodservice facility, a reliable



supply of hot water is a very high priority. So often the appliances that are employed to provide this easily taken for granted commodity are “out of sight – out of mind” until you open the faucet and the water runs cold. And when you’re out of hot water...you’re out of business!

High-efficiency and Energy Star rated water heaters can provide more hot water in less space and with quicker recovery for higher demand foodservice applications all while reducing the energy costs associated with producing it. Typically, a natural gas water heater can heat more water in less space, faster and as much as 50% less costly than an electrically powered unit.

The following will provide an executive summary of the various types of commercial water heating technologies on the market for foodservice operators.

- **Continuous Flow Water Heaters** – Often referred to as “tankless,” these modern day marvels can go a long way toward reducing your water heating and construction costs. With the growing popularity of “on-demand” natural gas water heaters for residential applications, it didn’t take long for the foodservice industry to recognize that it too could benefit from footprint and storage tank reductions. There are many brands on the market today designed specifically for the high use of a commercial foodservice facility. With individual units being able to deliver nearly 10 gpm of continuous hot water, a system can easily be designed to meet your requirements.



- **Booster Water Heaters** – According to the National Restaurant Association, water heating can account for as much as 20% of an operator’s annual energy costs. Restaurants that use dishes and glassware are likely to spend an even greater portion of their energy dollar on water heating because, very often, the largest consumer of hot water in a restaurant is the warewasher. Optimizing warewashing operations by incorporating a gas-fired booster water heater for sanitizing dishware can improve your bottom line through reduced energy costs (over electric boosters), increased productivity, and most importantly – higher customer satisfaction!
- **High-Efficiency Condensing Units** – When people started getting serious about improving the efficiency ratings for water heaters several decades ago, condensing designs began popping up from virtually every well-known manufacturer in the industry. Since their debut, there have been improvements to make them more reliable, smaller, and more powerful. Today, they are known for being real energy misers as they “squeeze out” virtually every BTU that is produced through the gas combustion process. Before venting the combustion gases directly to the outside, flue gases are captured and utilized to heat the water even more.

A conventional gas storage water heater is like a water tank sitting atop a gas fireplace with the chimney running straight up through the middle and exiting at the top. A gas condensing water heater, however, has its “chimney” or flue designed as a coil, creating greater surface area. Because the heat and combustion gases have much farther to travel before they exit the water tank, more heat is transferred to the water in the tank. This substantially increases the efficiency to 95% or more!

Venting has become more simplified too as plastic pipe has become the norm for the exiting combustion gas and incoming combustion air. Many condensing models are equipped with modulating combustion turndown ratios. This means they can fire at lower settings when water heating demand is lowest, and increase the firing rate up to 100% as the demand increases. The result is better overall efficiency and less cycling, compared to standard tank-type units which are either full on or off, meaning they can only fire at 100%



of maximum input. The benefits high-efficiency natural gas condensing units offer a foodservice operator are well worth the price since the cost of heating water is often reduced 20 – 30%.

- **High-Efficiency Storage Tank Units** – These gas storage water heaters employ the same technology as standard gas storage water heaters: a glass-lined steel or stainless steel tank is heated by a burner located at the bottom of the tank. But with a few basic changes, they are designed to operate more efficiently. High-efficiency models have better insulation, heat traps and more efficient natural gas burners. These simple improvements have only a modest impact on price but



may increase efficiency by about 7.5%. To increase efficiency further, manufacturers may add a power vent to accelerate the venting of combustion gases for an even greater savings yield.

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## Step Five

### Why choose natural gas for space conditioning?

When looking for an energy source to control your restaurant's temperature, humidity, ventilation and overall air quality, you just can't beat the comfort of natural gas. Natural gas heating will provide you with heat when and where you need it at a cost that won't break your budget. There are various types of systems available today.

- **Direct Space Conditioning** – Direct space conditioning involves providing heating or cooling to an area using the heating or cooling medium in direct contact with the air stream accommodating the loads of the space. Direct heating would be a direct gas fired, make-up air heater used in a facility having heavy exhaust requirements, such as a restaurant. In

areas of high heat, an evaporative cooler is considered a Direct Cooling application.

- **Indirect Space Conditioning** – Indirect space conditioning involves the use of a heat exchanger between the air that conditions the area and the cooling or heating medium employed to provide for the loads. When the heat exchanger uses evaporating refrigerant for cooling or burns natural gas for heating, it is considered a “primary indirect system.” If the heat exchanger employs a secondary heat transfer fluid, such as chilled water or glycol for cooling and/or hot water or steam for heating, it is considered a “secondary indirect system.”
- **Humidity Control** – For most comfort applications, proper selection of equipment will provide for humidity maximums in the range of 45 – 55% during the summer months, with little thought being given to low winter humidity being a problem. Humidity control within specific ranges, for those applications requiring such, may be attained through various means such as water vaporization, reheat, or steam injection. Occupant discomfort, product needs, static electricity, or other requirements may demand precise humidity control.

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## Step Six

### Check out more natural gas enhancements.

There are additional opportunities for natural gas products to assist in making your foodservice operation more efficient and enjoyable too! Check out incorporating direct fired make-up air units for your kitchen ventilation system, gas fireplaces, firepits, gas lights and infrared heaters for indoor and outdoor dining ambiance and even gas desiccant systems for moisture control in high humidity locales. If you are operating in areas that experience frequent power outages due to weather related issues, a natural gas backup generator can be a real asset in keeping your location open and ringing up sales while your competitors are faced with remaining closed until the power is restored.

Don't forget to check with your local gas utility for any rebates they offer for energy-efficient equipment.

*To learn more about how natural gas can benefit your foodservice operation, visit the Gas Foodservice Equipment Network at [www.gfen.com](http://www.gfen.com).*