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KEY POINTS

- **Natural gas cooking products now feature greater energy efficiency.**
- **Major advances have occurred with gas griddles, fryers, and boilerless combination ovens.**
- **Improvements in heat transfer and automatic controls are helping produce energy savings.**

Find out what incentives are available for your home or business.
Energy Efficiency 603-216-3698
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Get Cooking with Natural Gas

High-Efficiency Equipment Saves Energy

A recent survey found that 98% of professional chefs preferred cooking with natural gas because of cooking speed and precise temperature control. In fact, natural gas has long been the preferred energy source for most food service employees. And now, manufacturers of gas cooking equipment offer energy-efficient products that are more cost effective to operate than standard units, while still offering the same quality and productivity expected of gas equipment.

Source: OSHA.gov

Gas Griddles

Recent improvements in gas griddle technology provide surface areas with consistent temperatures from edge-to-edge. This allows the operator to increase production without compromising product quality and consistency. In one case, productivity was as high as a standard griddle even at half the size because of the uniform surface temperature.

High-efficiency gas griddles save energy by transferring a larger percentage of the heat produced by the combustion process to the griddle plate that is used to cook the food. These griddles can consume up to 30% less energy than standard griddles. Energy-saving features include:

- Infrared (IR) burners offer a compact and efficient method for transferring heat to the cooking surface. This allows for a quicker recovery when a load is placed on the griddle.
- Chrome-surfaced griddle plates radiate less heat away from the griddle, use less energy, and are easier to clean.
- Solid-state thermostats offer greater temperature control than conventional controls.
- Steam griddles trap high-temperature steam under the griddle to provide greater temperature uniformity.

The following table compares energy rate and use as a function of efficiency for griddles.

Gas Fryer Energy Comparison			
	Low-Efficiency	**Medium-Efficiency**	**High-Efficiency**
Energy Efficiency	30%	38%	45%
Idle Energy Rate	18 kBtu	16 kBtu	14.5 kBtu
Annual Energy Use	1,150 therms	1,060 therms	960 therms

For more information, see the Department of Energy document Buying Energy-Efficient Griddles.

ENERGY SAVINGS HIGHLIGHT

After an Italian restaurant in Cape Cod, Massachusetts installed three 110,000 BTU high-efficiency fryers, an estimated 1,296 therms was saved compared to standard efficiency fryers, resulting in a $1,684 annual cost savings.

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- may fund a portion of the cost of an energy audit study
- provides incentives on energy savings improvements
- may require pre-approval of the audit and incentives

Gas Fryers

Energy-efficient gas fryers are more productive at less cost than ever before. Manufacturers have designed models that operate quickly and conveniently, as well as more efficiently. Energy-saving features include:

- Infrared burners offer a compact and efficient means for transferring heat to the frying oil. In addition, IR burners operate with less than 10% excess air, reducing combustion energy loss up the flue.
- Larger surface areas are found on heat exchangers. This improves the heat transfer to the oil and increases energy efficiency.
- Recirculation tubes route flue gases around the sides to create a larger heat transfer surface, and increase the transfer of combustion heat to the frying oil. This can increase energy efficiency up to 15%.
- Built-in oil filtration systems and built-in timers can help prevent overcooking and save energy.

The following table compares energy rate and use as a function of efficiency for fryers.

Gas Fryer Energy Comparison			
	Low-Efficiency	Medium-Efficiency	High-Efficiency
Energy Efficiency	35%	50%	65%
Idle Energy Rate	14 kBtu	6.5 kBtu	4.5 kBtu
Annual Energy Use	1,000-1,200 therms	700-800 therms	500-600 therms

In addition to lower operating costs, high-efficiency gas fryers also offer higher production rates and shorter recovery periods than typical fryers and (in certain applications) can eliminate the need for a back-up fryer. After an Italian restaurant in Cape Cod, Massachusetts installed three 110,000 BTU high-efficiency fryers, an estimated 1,296 therms was saved compared to standard efficiency fryers, resulting in a $1,684 annual cost savings. For more information, see the U.S. Department of Energy document Buying Energy-Efficient Commercial Fryers.

Boilerless Combination Ovens

Electric-powered combination ovens, introduced a number of years ago, were generally lower in cost, more productive, and required less maintenance than natural gas units. This may change with the introduction of the gas-powered boilerless combination oven. Combination ovens incorporate the features of a convection oven with a steamer cabinet in a single floor-mounted unit. The boilerless units eliminate the boiler by generating their own steam. This helps to save energy and water usage as well as simplify maintenance and repair. The combination of hot air and superheated steam provides even faster cook times than convection alone. The Food Service Technology Center offers life-cycle and cost calculators for combination ovens and a wide range of other cooking equipment.

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