



Gas Equipment Efficiency Improvements Over the Past 5 Years

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“Will it cook the way I want it to?” “How much is it going to cost me?” Historically, these were the two most prevalent questions on a chef’s or owner’s mind when deciding which equipment to put in their kitchens. Today, cooking performance and cost are still the most important factors when choosing equipment, but chefs and owners are also becoming more aware and concerned about the yearly operating

equipment manufacturers, foodservice operators are becoming more aware of the “green” or energy-efficient equipment options available and their potential yearly cost savings. In addition, the volume of energy efficiency information including marketing, test standards, performance data and utility rebates has grown steadily and become more visible at industry events such as the National Restaurant

Table 1: Commercial Foodservice ENERGY STAR Appliances

Equipment	Date Initiated	Manufacturers Making Energy Star Models
Commercial Dishwashers	11/11/2007	16
Commercial Fryers	8/15/2003	19
Commercial Griddles	5/8/2009	6
Commercial Food Holding Cabinets	8/15/2003	22
Commercial Ice Machines	1/1/2008	6
Commercial Ovens	5/16/2009	18
Commercial Refrigerators and Freezers	9/2001 4/1/2009	34
Commercial Steam Cookers	8/1/2003	8

costs of their equipment. More and more, the biggest percentage of that yearly cost is the energy usage.

Natural gas continues to hold a strong position in the commercial foodservice industry. A recent survey by GFEN revealed that 98% of professional chefs prefer natural gas as their primary energy source. And while this is largely due to the reliability and superior cooking performance of gas-fired equipment, it is also due to the energy cost savings of natural gas.

Today, thanks to the efforts started by Pacific Gas and Electric (PG&E) and continued by the Food Service Technology Center (FSTC), organizations like the Green Restaurant Association (GRA) and

Association (NRA) and North American Food Equipment Manufacturers (NAFEM) shows.

The Star of Energy Efficiency

The biggest change in the past five years in the commercial foodservice industry has been the prevalence of ENERGY STAR. The EPA and DOE established ENERGY STAR to reduce greenhouse gas emissions caused by the inefficient use of energy and to make it easier for consumers to identify and purchase energy-efficient products without having to sacrifice performance. In most cases, the higher

efficiency appliances are better performing, top of the line appliances as well.

ENERGY STAR ratings for commercial food service equipment started in 2001 with refrigerators and freezers. Since then, other appliance categories have been steadily added. The number of manufacturers making ENERGY STAR models has also steadily increased in each category. (see Table 1)

An ENERGY STAR appliance will provide significant savings over a standard efficiency appliance. The savings can be in gas or electric usage as with an oven or fryer, or can be water and energy savings as with a warewasher. For example, an ENERGY STAR rated commercial gas oven could save around 30MBTU annually, which translates to an estimated \$360/year savings.

The number of ENERGY STAR appliances being shipped each year is steadily increasing for four equipment categories. (see Table 2) ENERGY STAR rated commercial steam cookers, for instance, increased from 12% of steamers in 2007 to 28% of steamers shipped in 2009.

Interest in ENERGY STAR and improved energy efficiency has resulted in an increase of new gas technologies being introduced into the commercial foodservice market in the past five years. Prior to that, because of the effectiveness of gas-fired foodservice equipment in terms of cooking and reliability, many basic designs for their combustion systems had remained relatively unchanged for decades. Before efficiency and the associated long term cost-savings became important to buyers, the market drivers of lower first cost and cooking performance did not push the industry toward new and improved burner designs.

However, research funded by government or gas industry energy efficiency programs has shown that commercial foodservice products can be made to provide the quality chefs expect while using more efficient gas technologies. Over the past decade, appliances such as fryers, convection ovens, griddles and steamers have all experienced significant upgrades in their designs from earlier models to



Table 2: ENERGY STAR Shipment Data

	2007 Shipment Data			2008 Shipment Data			2009 Shipment Data		
	ENERGY STAR	% of Total	Total	ENERGY STAR	% of Total	Total	ENERGY STAR	% of Total	Total
Commercial Fryers	6,112	7%	87,314	6,519	7%	93,000	11,000	12%	92,000
Commercial Griddles	N/A			N/A			1,000	5%	20,000
Commercial Ovens	N/A			N/A			15,000	7%	214,000
Commercial Steamers	4,948	12%	41,233	5,237	23%	23,000	6,000	28%	21,000

more energy-efficient designs. These improvements are evident in the ever growing list of ENERGY STAR appliances.

The Gas Technology Institute (GTI) has partnered with several foodservice manufacturers, the gas industry, and government agencies to develop, test and demonstrate new technologies that save energy. Some of the gas appliances and manufacturers include: fryers that reduce oil and natural gas usage with Frymaster and Pitco; demand ventilation systems that reduce ventilation losses with CaptiveAire; conveyor pizza ovens with reduced standby losses with Lincoln; steamers with improved combustion efficiency with Stellar Steam; conveyor pizza ovens with improved temperature control and reduced energy losses with Avantec; and many other projects that are currently in the development and/or demonstration stages.

What's Next

With eight different commercial foodservice equipment categories, ENERGY STAR ratings are leading to a lot of saved energy, but there are still a lot of potential additional equipment categories and savings to be added. Commercial ranges, for example, are large energy users with large potential savings as are charbroilers, combi ovens, woks and others.

Groups such as the American Council for an Energy Efficient Economy (ACEEE) and the California Energy Commission (CEC) are continually working with other organizations to provide data and demonstrate technologies to increase the penetration of ENERGY STAR appliances or other high-efficiency technologies. New gas technologies are always in the works and will continue to be developed and introduced as manufacturers, ENERGY STAR and other groups such as GFEN and GTI all work together to introduce and promote high-efficiency appliances.

To learn more about natural gas equipment, visit www.gfen.com

