

## Sure Bet Program

Offered By: NV Energy  
Administered By: KEMA Services, Inc.

### Case Study: Commercial Kitchens Equipment

Cooking appliances account for about 12 percent of the electricity bill in a typical restaurant. Even if food preparation is a relatively small part of the activity at your facility, energy-efficient cooking appliances can reduce energy costs. Fortunately, there are also ways to save without making substantial capital investments. As a general rule, commercial cooking operations can be grouped into the major categories of ovens, stovetops, fryers, and broilers. This case study focuses on energy efficiency opportunities in these major groups of appliances.

Electric cooking has several advantages for commercial users in addition to energy efficiency including:

- Ease of cleaning resulting in lower labor costs
- Less heat resulting in lower air conditioning units
- Enhances employee comfort and satisfaction potentially leading to less turnover
- Improved heat controls with superior low heat control
- The safety of electricity as an energy source
- Faster cooking with microwave, convention and flashbake ovens, and induction cook tops

#### **Project Description**

This case study focuses on three facilities that have installed energy efficient commercial kitchens equipment. These three customers are located in the Las Vegas Valley:

- Stratosphere Hotel and Casino
- JW Marriott
- NV Energy Steve Diner's Kitchen

#### ***Stratosphere Hotel and Casino***

Stratosphere Hotel and Casino completed the retrofit of a number of their old ice machines with the CEE Tier 2 equipment. They installed 20 Manitowoc SB-04553W and one Manitowoc SD-0323W ice machine on each floor of the hotel tower. This retrofit project resulted in an estimated annual energy savings of 20,538 kWh per year. The customer received an incentive amount of \$1,550 from the Sure Bet Program for this project.

Some facts obtained from the Energy Star website indicate Commercial Ice Machines that have earned the ENERGY STAR are on average 15 percent more energy efficient and 10

percent more water-efficient than standard models earning the ENERGY STAR; each ENERGY STAR qualified commercial ice machine can save businesses energy about 1,200 kWh annually, or an average of \$110/year on utility bills; besides energy, commercial ice machines also consume water during operation and by purchasing products that meet the ENERGY STAR criteria, consumers can expect to save an additional \$10/year and 2,500 gallons/year due to reduced water usage<sup>1</sup>.

### ***NV Energy Steve Diner***

NV Energy's Steve Diner completed a retrofit of their old fryer with two high efficiency fryers in the Company's Cafeteria. The high efficient Frymaster fryer resulted in an estimated annual energy savings of 2,331 kWh per year. This equipment is eligible for a \$400 incentive from the Sure Bet Program.

Opportunities of improving the energy efficiency of fryers include:

**Limit fryer preheat times** – Preheat fryers no longer than the manufacturer's recommendation – usually 7 to 15 minutes. Allowing the fryer to preheat longer than needed increases energy costs. A high preheat setting will not heat the fryer any faster but it may overheat the fryer leading to wasted energy

**Remove sediment** – Sediment should be filtered from the fryer periodically. When sediment accumulates, the energy efficiency of the fryer is reduced.

**Clean the heating element** – Clean the heating element frequently. Accumulated debris on the element makes it more difficult to heat the fryer and drives up energy costs.

**Check temperatures** – Use a reliable thermometer to check the temperature of the fryer periodically. If the temperature is significantly different from the setting, adjusting the thermostat could save you energy and improve the quality of the food.

Some facts obtained from the Energy Star website indicate that fryers that have earned the ENERGY STAR are up to 30 percent more energy efficient than standard models, must meet a minimum cooking efficiency\* 80 percent (electric) while also meeting a maximum idle energy rate of 1,000 watts (electric), and offer shorter cook times and higher production rates through advanced heat exchanger designs. Frypot insulation reduces standby losses resulting in a lower idle energy rate. Each ENERGY STAR qualified electric fryer can save 1,100 kWh annually, or an average of \$120/year on utility bills<sup>2</sup>.

\*Under heavy-load conditions

### ***JW Marriott***

JW Marriott completed a retrofit of an older steam cooker with a high efficiency Cleveland electric steam cooker in one of the kitchens. The Cleveland electric Steam cooker resulted in an estimated annual energy savings of 11,166 kWh per year. The customer received an incentive amount of \$750 from the Sure Bet Program for the retrofit of this equipment.

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<sup>1</sup> [http://www.energystar.gov/index.cfm?c=comm\\_ice\\_machines.pr\\_comm\\_ice\\_machines](http://www.energystar.gov/index.cfm?c=comm_ice_machines.pr_comm_ice_machines)

<sup>2</sup> [http://www.energystar.gov/index.cfm?c=fryers.pr\\_fryers](http://www.energystar.gov/index.cfm?c=fryers.pr_fryers)

Some facts obtained from the energy star website indicate that steam cookers that have earned the ENERGY STAR are up to 50 percent more energy efficient than standard models, offer shorter cook times, higher production rates, and reduced heat loss due to better insulation and more efficient steam delivery system. Each ENERGY STAR qualified electric steam cooker can save businesses 4,930 kWh annually, or an average of \$510/year on utility bills.

In addition to saving energy, ENERGY STAR qualified steam cookers also save water — 90 percent or more when compared with standard steam cooker models (using on average 3 gallons of water per hour for ENERGY STAR qualified steam cookers versus 40 gallons of water per hour for standard models). Saving water helps protect our nation's water supplies<sup>3</sup>.

\*Under heavy-load conditions

### **For More information**

Visit the websites [www.cee1.org](http://www.cee1.org) and [www.energystar.gov](http://www.energystar.gov) for more information

### **Project Results**

Average Demand Reduction	5.33 kW
Total Annual Energy Savings	34,035 kWh
Total Annual Energy Cost Savings Plus additional Water Savings	\$3,403.50
Total Incentive	\$2,700.00

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<sup>3</sup> [http://www.energystar.gov/index.cfm?c=steamcookers.pr\\_steamcookers](http://www.energystar.gov/index.cfm?c=steamcookers.pr_steamcookers)