

# Cookline Replacement Study

**DoubleTree Hotel**  
Pleasanton, CA

## *Doubling down on energy efficiency...*

DoubleTree Hotel by Hilton, an upscale, business-oriented hotel in Pleasanton, CA, needed to try something different. Their high-volume kitchen serves a full-service restaurant, room service, and catering throughout the year including business parties and weddings. But their ever-growing utility bill (especially in gas and water usage) was beginning to cripple their bottom-line.

Their need to streamline their kitchen cookline to be more energy efficient made them a great candidate for the Commercial Cooking Equipment and Kitchen Ventilation System Baseline & Replacement Characterization study to research existing kitchen energy use and demonstrate energy savings through strategic equipment replacement. Frontier Energy, Inc., working in conjunction with Pacific Gas & Electric (PG&E) Company performed the technical study for the California Energy Commission's (CEC) Natural Gas Research and Development Program.

The restaurant is served by a large kitchen which primarily consists of two cooklines (a main line and a prep line).



Energy-efficient combination oven (L) and ENERGY STAR® two-compartment steamer (R)



## **BEFORE:**

- The main line was equipped with: a boiler-based two-compartment steamer, two six-burner ranges, a salamander, a 3-ft non-thermostatic griddle, a 4-ft underfired broiler and a double fryer with two 14-inch vats.
- The prep line was equipped with: a two-compartment cook-and-hold, two double stack convection ovens, a six-burner range, two tilt skillets and two boiler based two-compartment steamers.
- The two cooklines combined used about 39 therms/day.
- The broiler and the two double stack convection ovens made up 50% of the total gas energy use.

## **Annual Operating Costs<sup>1</sup>**

Pre-Makeover Costs  **\$20,550**

Post-Makeover Costs  **\$7,300**

<sup>1</sup> Electric and gas utility rates based on \$0.15/kWh and \$1.00/therm.

## **Operating Savings<sup>1</sup>**

Annual Energy Savings  **\$13,250**

Rebate Savings  **\$9,998**

<sup>1</sup> fishnick.com/saveenergy/rebates.

**FRONTIER**  
energy





**ENERGY STAR convection ovens**



**ENERGY STAR fryers**



**ENERGY STAR griddle**

**AFTER:**

- The main line is now equipped with: an ENERGY STAR steam generator two-compartment steamer with a reduced water consumption condensate cooling system, an ENERGY STAR 3-ft thermostatic griddle with electronic ignition, an energy efficient 3-ft underfired broiler with Infrared Radiant (IR) technology, two ENERGY STAR 14-inch fryers and the two existing six-burner ranges along with the salamander.
- The prep line is equipped with: an ENERGY STAR double stack convection oven, an ENERGY STAR 10-pan boiler based combi-oven, an ENERGY STAR steam generator based steamer along with the existing two-compartment cook-and-hold, two tilt skillets, six-burner range and one of the double stack convection ovens.
- The two cooklines combined now use about 32 therms/day.

**Quick Guide to DoubleTree's Savings**

	<b>EQUIPMENT UPDATE</b>	<b>ENERGY &amp; WATER SAVINGS</b>	<b>BENEFITS</b>
<b>MAXIMIZED COOKLINE</b>	Replaced steamers with ENERGY STAR steamers and combination oven	91%	Reduced energy consumption, increased cooking flexibility and added self-cleaning
	Replaced double stack convection ovens with ENERGY STAR double stack convection ovens	10%	Improved cooking performance and increased uniformity
	Replaced 3' non-thermostatic griddle with thermostatic 3' ENERGY STAR griddle	24%	Improved cooking performance with thermostatic griddle controls
	Replaced double-vat fryer with two high-performance 14-inch fryers	38%	Improved performance, decreased cook-time, faster recovery
	Replaced 4' broiler with an energy-efficient 3' broiler	32%	Improved performance, innovative technology
	Water efficient steamers and combination oven	76%	Reduced water consumption

The biggest gas savings came from the broiler replacement which resulted in a 32% energy reduction. The steamer replacement resulted in a 187 gallons of water per day reduction as the monitoring of the equipment not only highlighted the extensive water use but also uncovered a significant water leak in one of the steamers. Replacement of the griddle and fryers also accounted for a 24% and 38% energy reduction, respectively.

At the end of the study, most all appliances in the DoubleTree kitchen were replaced with energy and water efficient equivalents saving \$13,250 annually in energy costs and an additional \$1,092 in water costs. They also took advantage of the California Utility Rebate incentives program by qualifying for \$9,998 worth of rebates to help offset the initial costs of new energy efficient equipment. DoubleTree provided the opportunity for a holistic cookline replacement as each small appliance upgrade added up to sizable energy and water savings for the entire operation.



**Energy-efficient broiler**

**Equipment Savings and Rebates**

Fryer Operating Savings	◆ \$511
Fryer Rebate	◆ \$1498
Griddle Operating Savings	◆ \$365
Griddle Rebate	◆ \$300
Convection Oven Operating Savings	◆ \$146
Convection Oven Rebate	◆ \$1000
Broiler Operating Savings	◆ \$1,350
Steamers Operating Savings <sup>1</sup>	◆ \$10,878
Steamer Rebate	◆ \$7,200
Water Savings	◆ \$1,092

<sup>1</sup> Savings include replacement steamers and combination oven