

# Plug Load Replacement Study

## Café Gabriela

Oakland, CA

### A Double Shot of Energy Savings...

Established in 2010, Café Gabriela is a small, independent coffee shop located in the middle of Oakland's busy downtown close to several corporate buildings and key public transportation stations. Sourcing local ingredients for their coffee drinks and Filipino-inspired food menu, Café Gabriela prides itself on being a local leader in sustainability.

Eager to uncover inefficiencies in their business and update their procedures, Café Gabriela participated in the *Electric Plug Load Savings Potential of Commercial Foodservice Equipment* study to research existing foodservice plug load energy use and demonstrate energy savings through strategic equipment replacement. Frontier Energy, Inc., working in conjunction with Pacific Gas & Electric Company (PG&E), conducted the technical study as part of the California Energy Commission's Public Interest Energy Research (CEC-PIER) through the Electric Program Investment Charge (EPIC) program.

As an energy- and cost-conscious business, Café Gabriela wanted to optimize their operations wherever possible, and their continuous espresso machine operation was a prime target. A long-held notion prevalent in the high-end coffee world is that frequent heating and cooling of espresso machines causes internal piping to expand and contract, eventually leading to pipe seals failing. Therefore, it's standard practice in the industry to keep espresso machines switched on 24/7 for maintained quality and prolonged lifespan. Although applicable to older espresso machines with more fragile components, modern machines are designed to withstand such thermal fluctuations, making this practice a relic from another time with energy (and cost) intensive consequences.



Replacement espresso machine with automatic shutoff timer.



Frontier Energy researchers monitored Café Gabriela's existing espresso machine to obtain an accurate energy use profile before installing a new machine with advanced features.

#### BEFORE:

- The existing espresso machine was in use for only 10 hours each weekday, yet the machine was never turned off.
- The machine consumed an average 14.3 kWh per day, or about 14-15 kWh on weekdays and 13 kWh on weekends. As the café is not open for service on weekends, most energy consumed was the result of idle energy consumption rather than active use.

#### AFTER:

- The replacement espresso machine featured an insulated boiler operating at a lower average input rate and programmable controls set to shut the machine off 30 minutes after service, turn back on an hour before start of service, and remain off on weekends.
- The replacement machine reduced energy consumption to 4.5 kWh/day, a 69% reduction or about \$540/year in energy savings. The replacement machine also accounted for 500W less in peak demand period (12pm-6pm) operation resulting in an additional savings of up to \$96 per year.

Café Gabriela realized energy savings without having to make any additional operational changes or sacrifice product quality. The replacement demonstrated that many other café operations can benefit from modernized espresso machine features without having to continue outdated, energy-wasting practices.

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

Pre-Makeover Costs **\$772**

Post-Makeover Costs **\$232**

<sup>1</sup> Based on \$0.15/kWh and 360 days of operation per year. Excludes peak demand savings.