



 OCTOBER 8 & 9  DOWNEY, CA

# ET Summit Fall 2018

COMMERCIAL + RESIDENTIAL BUILDINGS

# Commercial Kitchens: Keeping Technologies Fresh!

## Advances in Plug Load Equipment

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# Advances in Plug Load Equipment

Takes partnership among the  
Utilities, Manufacturers, &  
Customers!



# Advances in Plug Load Equipment

- Why Plug Load Equipment
  - Always ON
  - Adds HEAT to space
  - Multiple equipment in small area
  - No test standards to compare
- Testing Procedures
  - Lab evaluation
  - Feedback & Review from all parties
  - Field evaluation
  - Feedback & Review from all parties
  - Report & Incentive established

# Advances in Plug Load Equipment

- Universal Holding Bins
  - 3 units – 4 row capacity
  - 2 set temperatures
  - Standard electric heating elements
  - Always ON



**Design & Engineering Services**

**HIGH DENSITY HOLDING BIN CABINETS FOR FOOD SERVICE APPLICATIONS**

*ET10SCE1410 Report*



*Prepared by:*

*Design & Engineering Services  
Customer Service Business Unit  
Southern California Edison*

*September 2011*

**What's Inside...**

Introduction.....	1
Assessment Objectives.....	1
Product Assessed.....	1
Test Methodology.....	2
Results.....	3
Conclusion.....	4

# Advances in Plug Load Equipment

- HIGH DENSITY Units
  - 2 units – 6 row capacity
  - Multiple set temperatures
    - Breakfast items
    - Lunch items
  - IR technology (Precise Temperatures)
  - Pulse ON
  - 2 Manufacturers (3 versions)



# Advances in Plug Load Equipment

- NON Energy Savings
  - Precise holding times and temperatures
  - LESS HEAT to space
  - Less equipment - More ROOM on counter
  - No test standards to compare

**TABLE 2. ANNUAL ENERGY CONSUMPTION AND SAVINGS FOR UHC-HDs BASED ON HOURS OF OPERATION**

UHC TYPE	NOMINAL DEMAND REDUCTION (kW)	24-HR OPERATION ANNUAL ENERGY SAVINGS (kWh/YR)	20-HR OPERATION ANNUAL ENERGY SAVINGS (kWh/YR)
Frymaster 1	2.5	5,051	7,518
Frymaster 2	2.5	8,465	8,296
Prince Castle	2.5	9,214	8,575

# Advances in Plug Load Equipment

- Packaging Machines
  - Always on (24hr/day)
  - 12 hr timer (Broken)
  - Standard electric heating elements
  - Safety Hazard (Hot to Touch)



**Design & Engineering Services**

**VACUUM-SEALING AND PACKAGING MACHINES FOR  
FOOD SERVICE APPLICATIONS FIELD TEST**

ET10SCE1450



Prepared by:

Design & Engineering Services  
Customer Service Organization  
Southern California Edison

October 2012

**What's Inside...**

Introduction .....	1
Assessment Objectives .....	1
Product Assessed .....	1
Test Methodology .....	2
Results .....	2
Conclusion .....	3
Recommendation .....	3



# Advances in Plug Load Equipment

- ON DEMAND Units
  - Only ON when activated
  - Higher Rated Heating Element
  - Instant Heat



# Advances in Plug Load Equipment

- NON Energy Savings
  - Cool to Touch
  - LESS HEAT to space
  - No test standards to compare (Field Data)
  - Less Maintenance

**TABLE 1. DEMAND AND ENERGY CONSUMPTION DATA FOR PACKAGE SEALERS**

	DEMAND (kW)	TOTAL ENERGY CONSUMPTION (kWh/YR)
<b>Ralph's</b>		
Conventional Package Sealer	0.27	2,311
On-Demand Package Sealer	0.05	412
Reduction/Savings	0.22	1,899
% Reduction/Savings	81%	82%
<b>Food4Less</b>		
Conventional Package Sealer	0.23	1,810
On-Demand Package Sealer	0.04	395
Reduction/Savings	0.19	1,415
% Reduction/Savings	83%	78%

# Advances in Plug Load Equipment

- Holding Wells
  - Water based
  - Inconsistent Holding Temps
  - Food Quality issues
  - Safety Hazard (Hot to Touch)

**Design & Engineering Services**

**INDUCTION WELL FOR FOODSERVICE APPLICATIONS**

*ET10SCE1480 Report*



*Prepared by:*

*Design & Engineering Services  
Customer Service Business Unit  
Southern California Edison*

*September 2011*

**What's Inside...**

Introduction .....	1
Assessment Objectives .....	1
Product Assessed .....	1
Test Methodology .....	2
Results .....	2
Conclusion .....	3
Recommendation .....	3

# Advances in Plug Load Equipment

- INDUCTION Holding Wells
  - Only ON when activated
  - Very Precise Holding Temp
  - Dry Well vs Wet Well



# Advances in Plug Load Equipment

- NON Energy Savings
  - Cool to Touch
  - LESS HEAT to space
  - Instant HEAT
  - Less Maintenance
  - Water Savings
  - Better Quality of Food
  - Labor Savings

**TABLE 1. DEMAND AND ENERGY CONSUMPTION DATA FOR HOLDING WELLS**

	DEMAND (kW)	TOTAL ENERGY CONSUMPTION (KWH/YR)
Baseline – Steam Wells	2.09	10,599
Induction Wells	1.11	5,102
Reduction/Savings	0.98	5,497

# Advances in Plug Load Equipment

- Toaster-Contact
  - Always ON
  - Added HEAT to space
  - Food Quality issues
  - Inconsistent Temps
  - Multiple units



Jack in the Box Dual Contact Toaster Field Test Summary

ET13SCE1160

## JACK IN THE BOX DUAL CONTACT TOASTER FIELD TEST SUMMARY

### INTRODUCTION

Southern California Edison's (SCE) New Products Development and Launch (NPDL) organization conducted this study in collaboration with SCE's Foodservice Technology Center (FTC). This field study tests the Jack in the Box dual contact toasters.

### ASSESSMENT OBJECTIVES

The objective of this study is to assess the energy consumption of the new dual contact toaster and calculate the associated energy savings compared to the baseline (2) single contact toasters specifically made for regular buns and sourdough buns. The assessed energy savings will be used to determine the potential for replacement of the existing (2) single contact toasters in Jack in the Box stores.

### PRODUCT ASSESSED

This field study tested the baseline, two single contact toasters and the new energy-efficient dual contact toaster. The baseline, two single contact toasters consisted of one 1,500 Watt (W), 120 Volt (V) Roundup bun toaster and (1) 3,300 W, 208 V Prince Castle sourdough bun toaster. These toasters work by placing buns vertically into the toaster. On one side of the opening a heated surface runs along the height of the toaster and on the other side a conveyor belt runs the height of the toaster. When a bun is placed into the opening one side of the bun is exposed to the heated surface and the other side is guided by the conveyor belt. Each conveyor belt is set to a specific speed allowing the bread to be exposed to the heated surface for a set time. The new dual contact toaster is a 2,700 W 208 V toaster consisting of one opening with two separate heating surfaces and one conveyor belt in one toaster. Figure 1 displays both systems.

# Advances in Plug Load Equipment

- DUAL Contact Units
  - Dual sides of contact
  - Precise Belt Speed
  - Single Unit
  - Multiple Buns



# Advances in Plug Load Equipment

- NON Energy Savings
  - LESS HEAT to space
  - Single Unit
  - Less equipment - More ROOM
  - Less Maintenance
  - More Production Capacity

Jack in the Box Dual Contact Toaster Field Test Summary

ET13SCE1160

**TABLE 1. ENERGY CONSUMPTION DATA FOR CONTACT TOASTERS**

Location	Round Up Bun Toaster (Daily kWh)	Prince Castle Sourdough Toaster (Daily kWh)	Baseline Total (Daily kWh)	Baseline Average (Daily kWh)	Prince Castle Dual Contact Toaster (Daily kWh)	Measure Average (Daily kWh)	Savings (Daily kWh)	Savings (Annual kWh)
Baldwin Park	34.11	25.84	59.95	53.55	39.63	35.81	17.75	6477
Covina	32.00	14.90	46.90		23.83			
Gary (Pomona)	38.25	14.56	52.81		40.14			
Towne (Pomona)	39.46	15.09	54.55		39.63			

**TABLE 2. DEMAND CONSUMPTION DATA FOR CONTACT TOASTERS**

Location	Round Up Bun Toaster (kW)	Prince Castle Sourdough Toaster (kW)	Baseline Total (kW)	Baseline Average (kW)	Prince Castle Dual Contact Toaster (kW)	Measure Average (kW)	Savings (kW)
Baldwin Park	1.34	0.64	1.98	2.09	1.00	1.04	1.04
Covina	1.34	0.65	1.99		1.03		
Gary (Pomona)	1.50	0.66	2.17		1.06		
Towne (Pomona)	1.56	0.65	2.22		1.05		



# Advances in Plug Load Equipment

- Toaster-Contact
  - Always ON
  - Added HEAT to space
  - Food Quality issues
  - Inconsistent Temps
  - Multiple units



CTX-200L  
& UTX-200L



# Advances in Plug Load Equipment

- Horizontal Units
  - Dual sides of contact
  - Precise Belt Speed
  - 2 units
  - Multiple Buns
  - IR technology



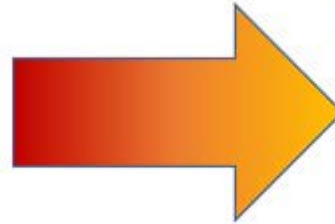
# Advances in Plug Load Equipment

- NON Energy Savings
  - LESS HEAT to space
  - Less equipment - More ROOM
  - Less Maintenance
  - More Production Capacity
  - Adjustable
    - Speed
    - Compression
    - Temperature

Toaster Cooking Mode	340-TG2L Muffin	5-IRT Muffin
Tested Voltage (V)	210	206
Measured Input Rate (W)	3,611	3,060
Preheat Time (min)	13.92	28.00
Initial Preheat Temperature (°F)	76	75
Final Preheat Temperature (°F)	376	600
Preheat Energy (Wh)	600	1,425
Idle Rate (W)	2,648	3,075
Idle Cavity Temperature (°F)	387	662
Load Width (muffin halves)	8	5
Cooking Energy Rate (W)	3,464	3,053
<b>Production Capacity (muffins/h)</b>	<b>184</b>	<b>252</b>
Energy Per Muffin (Wh/muffin)	18.9	7.2
Avg Cavity Cooking Temp (°F)	388	456
Avg Cooking Weight Loss (%)	12.8	11.2

# Advances in Plug Load Equipment

- Conveyor Toaster
  - Always ON
  - Added HEAT to space
  - Food Quality issues
  - Inconsistent Temps

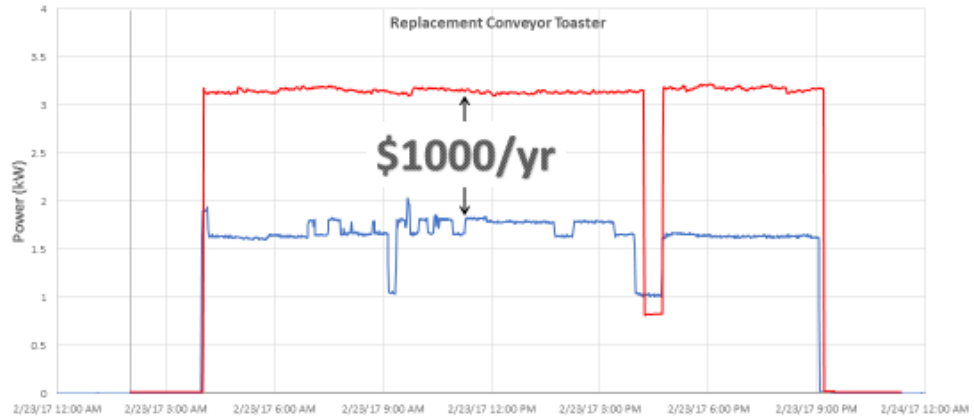


# Advances in Plug Load Equipment

- Smart Toaster
  - ON when Activated
  - Set Back Mode

## “Smart” Conveyor Toaster

Decreased average Input Rate from 3kW to 2kW



# Q&A

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