

## SUSTAINABILITY IN PRACTICE

### ENERGY EFFICIENCY 101 FOR FOOD SERVICE STUDENTS



SUMMER 2011

THE FOOD SERVICE TECHNOLOGY CENTER (FSTC) PROGRAM IS FUNDED BY CALIFORNIA UTILITY CUSTOMERS WITH PUBLIC PURPOSE PROGRAM (PPP) FUNDS AND ADMINISTERED BY THE PACIFIC GAS AND ELECTRIC COMPANY UNDER THE AUSPICES OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION.

PROMOTING:

### ENERGY EFFICIENCY IN COMMERCIAL FOOD SERVICE



PRESENTATION BY:  
**RICHARD YOUNG**  
SENIOR ENGINEER AND DIRECTOR OF EDUCATION



Food Service  
Technology Center  
Promoting Energy Efficiency in Food Service

FISHER  
NICKEL Inc.

## FOOD SERVICE TECHNOLOGY CENTER: WHO? WHAT? WHY?

## **WHO?**

**THE FOOD SERVICE TECHNOLOGY CENTER (FSTC) IS AN  
UNBIASED ENERGY-EFFICIENCY RESEARCH PROGRAM  
FUNDED BY CALIFORNIA UTILITY CUSTOMERS.**

**SPECIALIZING IN COMMERCIAL FOOD SERVICE.  
PROMOTING ENERGY EFFICIENCY AND PERFORMANCE  
CELEBRATING 24 YEARS OF HARD WORK!**

## **WHAT?**

### **APPLIANCE TESTING LAB**



## **WHAT?**

### **ON-SITE ENERGY MONITORING**



## **WHAT?**

### **ENERGY SURVEYS**



# WHAT? INFORMATION SHARING



**FOOD SERVICE TECHNOLOGY CENTER**  
Promoting Energy Efficiency in Foodservice

1.800.398.3762

Home search online

About Save Energy Save Water Design Equipment Testing Education Ventilation Publications

**Food Service Technology Center**  
FSTC

Promoting energy efficiency and performance in commercial food service since 1987.

**FSTC News:**  
Redesigned Website Launches  
More information and better organization for the ultimate online resource for commercial kitchen energy efficiency.

FSTC Partners with Conserve  
The National Restaurant Association's Conserve program offers solutions for sustainability.

10 Ways to Save Natural Gas  
These tips will save you money without compromising the comfort, performance or productivity of your kitchen.

**Educational Seminars**  
Do green. Learn about energy efficiency, saving water, sustainability, lighting, and more.

**Equipment Rebates**  
It pays to be efficient. Take advantage of cash incentives on energy-saving equipment.

**Green Your Restaurant**  
Being Green is about sustaining the environment and sustaining your bottom line. The FSTC is partnering with NRA's Conserve to introduce the industry's first comprehensive green recognition program. - Learn More

**Video Corner**  
Richard Young explains why choosing energy-efficient appliances is a smart business decision.

**Events and Seminars** | **Latest Publications**

Energy Efficiency for Foodservice with a 2010 Forecast F...  
Jan 23rd, 2010 - Downey, CA

Foodservice Refrigeration Check-out  
Jan 26th, 2010 - Tulare, CA

Food Service Refrigeration: Design and Operations, Tips ...  
Jan 28th, 2010 - San Ramon, CA

PG&E Foodservice Customers  
Find local resources and third-party programs.

Energy Tips  
From energy and water to refrigeration and lighting, we lost time too!

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conserve | NATIONAL RESTAURANT ASSOCIATION | AIAA | IATA | FCSI | NAFEM

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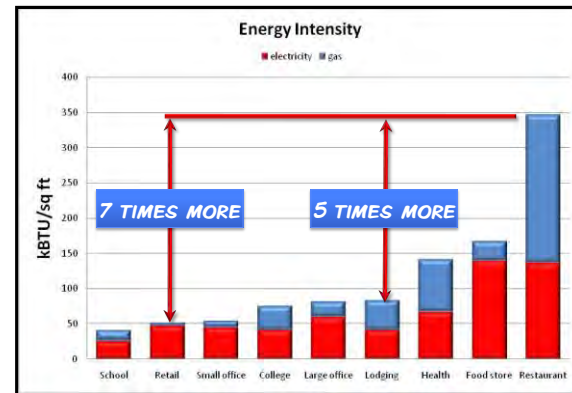
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From energy and water to refrigeration and lighting, we lost time too!

**REBATE INFO**  
**DESIGN GUIDES**  
**COST CALCULATORS**  
**SEMINARS**  
**ENERGY TIPS**  
**CONTACT INFORMATION**

FSTC Affiliate

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## WHY? FOOD SERVICE IS ENERGY INTENSIVE!



Source: www.energy.ca.gov/2006publications/CEC-400-2006-005/CEC-400-2006-005.PDF

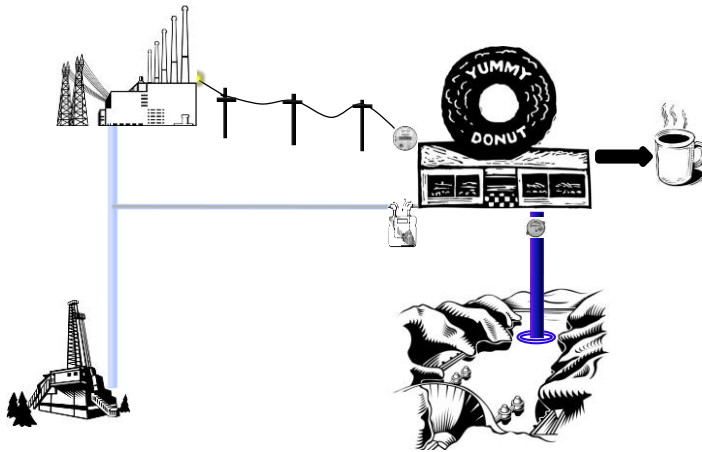
**KITCHEN USES 5 TIMES MORE ENERGY PER SQUARE FOOT THAN REST OF THE BUILDING!**

**YOUR KITCHEN IS BIGGER THAN YOU REALIZE**



**HOW IS A FOOD SERVICE OPERATOR LIKE AN ENERGY COMPANY?**

**ENERGY IS CONVERTED TO HOT FOOD**



**ONE OF YOUR SINGLE BIGGEST PURCHASES IS PROBABLY THE ONE YOU KNOW THE LEAST ABOUT!**

**STEP ONE: TRACK YOUR ENERGY AND WATER COSTS.**

**FOR EXAMPLE:**

**A SINGLE LEAKY TOILET WAS COSTING AN OAKLAND CAFE \$400 A MONTH!**

**OWNER CAUGHT IT BY LOOKING AT THE BILL.**

**ENERGY SAVINGS GO DIRECTLY TO THE BOTTOM LINE**



**CHALLENGING TIMES?**

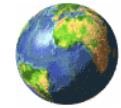


**CHALLENGES:**

- **WATER SHORTAGES AND RISING PRICES**
- **RISING FUEL PRICES**
- **RISING FOOD PRICES**
- **TIGHT ECONOMY**
- **PUSH TOWARDS GREEN**



**ENERGY = \$\$\$ = CO<sub>2</sub>**



**GO GREEN + MAKE GREEN  
= WIN WIN!**

**THE "GREENEST" ENERGY  
IS THE ENERGY YOU NEVER USED!**

**WHILE SOME SUSTAINABLE FOOD  
CHANGES CAN UP YOUR TICKET PRICE,  
EFFICIENCY HAS THE POTENTIAL TO  
UP YOUR PROFITS!**



**WE CALL THAT:**

# **SUSTAINABILITY BEYOND THE PLATE**

## **WHAT IS "GREEN FOOD SERVICE"?**



- |                        |                             |
|------------------------|-----------------------------|
| <b>FARM-TO-FORK</b>    | <b>F.O.G. MITIGATION</b>    |
| <b>LOCALLY GROWN</b>   | <b>POLLUTION PREVENTION</b> |
| <b>ORGANIC</b>         | <b>ENERGY EFFICIENCY</b>    |
| <b>BIO-DIESEL</b>      | <b>WATER CONSERVATION</b>   |
| <b>RECYCLING</b>       | <b>RENEWABLE ENERGY</b>     |
| <b>COMPOSTING</b>      | <b>EDUCATION</b>            |
| <b>PACKAGING</b>       | <b>TRANSPORTATION</b>       |
| <b>WASTE REDUCTION</b> | <b>BUILDING MATERIALS</b>   |
|                        | <b>SITE SELECTION</b>       |

### **BONUS: EFFICIENCY MAKES LIFE EASIER!**

- 👍 COOLER, QUIETER, LESS SMOKY KITCHEN**
- 👍 GREATER FOOD PRODUCTION**
- 👍 BETTER COOKING UNIFORMITY**
- 👍 BETTER LIGHTING**



# **Going Green?**

## **Or Just Trying to Survive!**



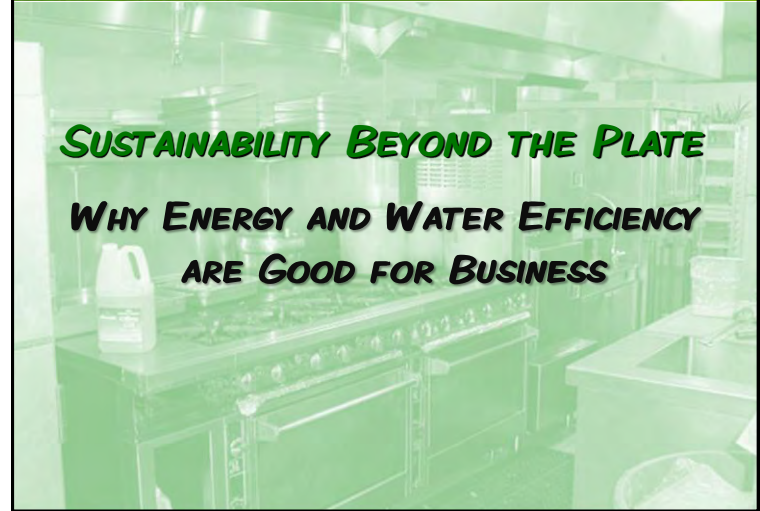
**EFFICIENCY IS A WAY TO DO BOTH.**



**FOOD SERVICE  
TECHNOLOGY CENTER**  
PROMOTING ENERGY EFFICIENCY IN FOODSERVICE

**SUSTAINABILITY BEYOND THE PLATE**

**WHY ENERGY AND WATER EFFICIENCY  
ARE GOOD FOR BUSINESS**



**SAVING ENERGY AND WATER IS A  
SUCCESSFUL BUSINESS STRATEGY!**



**AFTER 20 YEARS OF SITE AUDITS, THE  
FOOD SERVICE TECHNOLOGY CENTER  
HAS A LONG LIST OF  
GREEN RECOMMENDATIONS!**

**DILEMMA: HOW TO SHARE ALL THIS  
INFORMATION WITH EVERYBODY?**

**FSTC PARTNERS WITH  
THE NATIONAL RESTAURANT ASSOCIATION  
AND KENDALL COLLEGE**



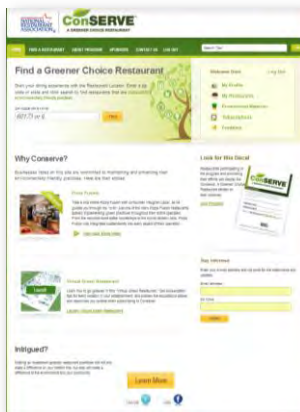
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<http://www.restaurantsconserve.com>

**EDUCATION AND RECOGNITION PROGRAM**

**ONLINE RESOURCE:  
SIMPLE AND STRAIGHTFORWARD  
GUIDE FOR EDUCATION AND  
IMPLEMENTATION OF SUSTAINABILITY**



**Greener Best Practices**

- Energy Efficiency [Expand](#)
- Water Conservation [Expand](#)
- Waste Reduction [Expand](#)
- Building/Construction [Expand](#)
- Program Administration [Expand](#)
- Innovation/Other [Expand](#)

[www.restaurantsconserve.com](http://www.restaurantsconserve.com)

**THE PLACE TO START:**

**HAVE FUN!  
BE A GREEN DETECTIVE AND PLAY  
CSI COMMERCIAL KITCHEN**



**HERE ARE SOME COMMON ENERGY AND WATER WASTERS.**

**SEE IF YOU CAN FIND WHAT'S WRONG IN THE FOLLOWING PICTURES:**



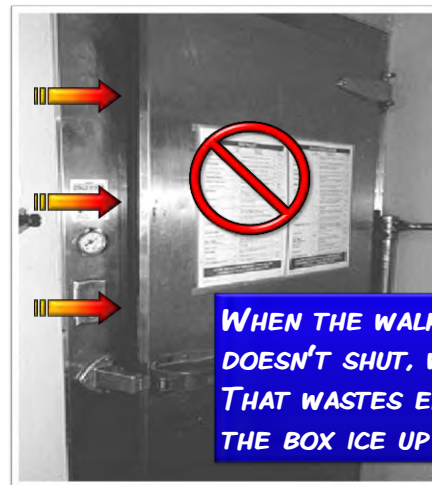
**EFFICIENT LIGHTING IS A  
75%-OFF SALE**



**EXERCISE: SURVEY A WORKING KITCHEN  
AND COUNT THE LIGHT BULBS IN THE  
KITCHEN EXHAUST HOODS, WALK-INS,  
STORE ROOMS AND BATHROOMS.**

**EACH CFL THAT REPLACES AN OLD-  
SCHOOL LIGHT BULB SAVES ABOUT  
250 POUNDS OF CO<sub>2</sub>!**

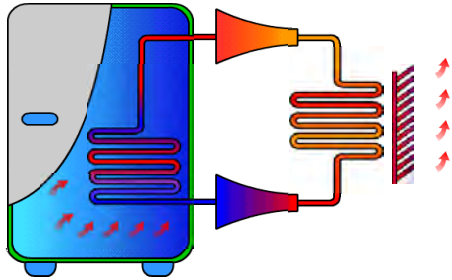
**HOW MANY POUNDS OF CO<sub>2</sub> COULD YOU  
SAVE IN THE KITCHEN YOU SURVEYED?**



**WHEN THE WALK-IN DOOR  
DOESN'T SHUT, WARM AIR GETS IN.  
THAT WASTES ENERGY AND MAKES  
THE BOX ICE UP EASIER.**

**WHAT IS REFRIGERATION?**

**IT IS REMOVING HEAT FROM THE AIR IN A BOX**



**LEAKY REFRIGERATOR DOORS  
WASTE ELECTRICITY 24/7/365**

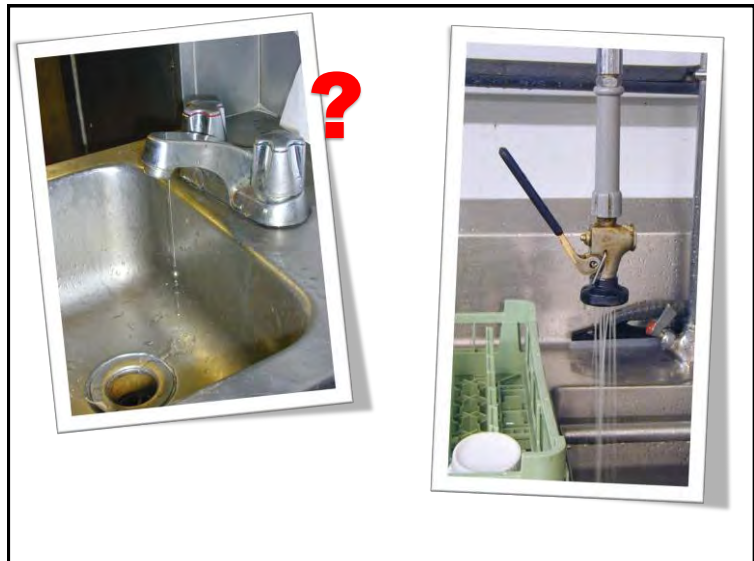


**EXERCISE: SURVEY A WORKING KITCHEN  
AND CHECK ALL THE WALK-IN DOORS.**



**DOORS SHUT TIGHTLY?**

**DO THE AUTOMATIC  
DOOR CLOSERS WORK?**





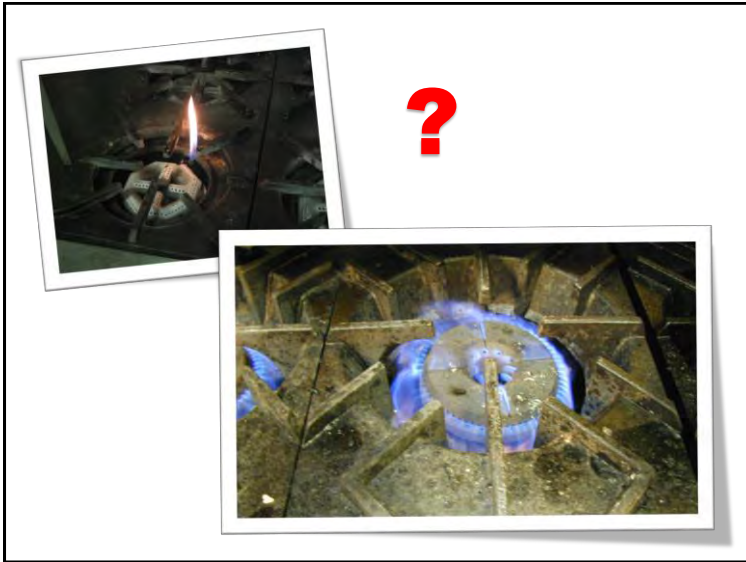
**EVERY DROP OF HOT WATER COST YOU THREE TIMES:**

**WATER      SEWER      HEATING ENERGY**

**EXERCISE: FIND A REAL LEAK OR SIMULATE A SMALL LEAK. USING A TIMER, FIND OUT HOW LONG IT TAKES TO FILL A ONE-OUNCE MEASURING CUP.**

**USING THIS CHART, FIND OUT HOW MUCH WATER YOUR LEAK IS WASTING EVERY DAY:**

SECONDS TO FILL ONE OUNCE	GALLONS PER DAY WASTED
12	56
11	61
10	68
9	75
8	84
7	96
6	113
5	135



**MAINTAIN YOUR EQUIPMENT  
IF IT LOOKS WASTEFUL...**

**IT IS!**

**EXERCISE: FIND A MANUAL FOR A GAS RANGE  
AND READ HOW TO PROPERLY ADJUST THE  
PILOTS AND BURNERS**



**PURCHASE YOUR EQUIPMENT WISELY!**

**FOOD SERVICE TECHNOLOGY CENTER**  
PROMOTING ENERGY EFFICIENCY IN FOODSERVICE

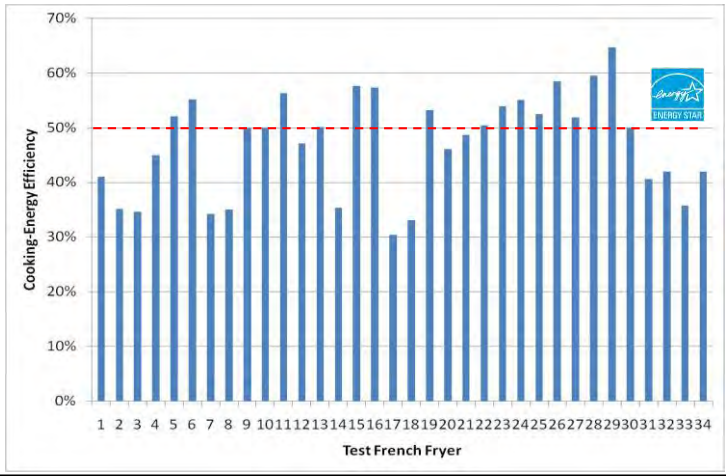
**CALIFORNIA'S  
FOOD SERVICE APPLIANCE REBATES  
ARE AN EASY WAY TO FIND  
EFFICIENT EQUIPMENT!**

**EXAMPLE: HIGH-EFFICIENCY ENERGY STAR  
GAS FRYER**

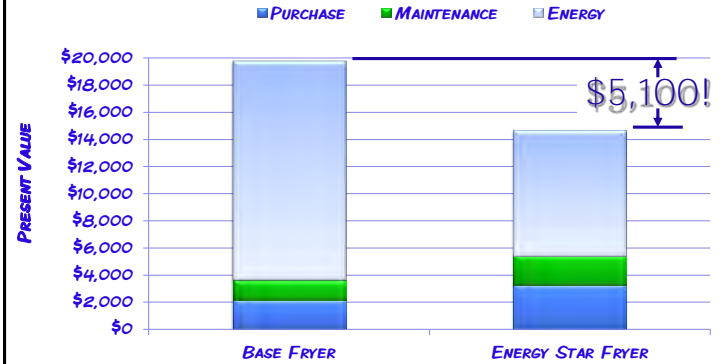
**ADVANTAGES:**

- **FASTER RECOVERY**
- **HIGHER PRODUCTION RATE**
- **LONGER LIFESPAN**

## GAS FRYER EFFICIENCY



## LIFE-CYCLE COST\* vs. PURCHASE COST



\*Based on \$1.60/therm, 16-hr/day usage, 125 lb/day food cooked, a 8-year life expectancy and a 3.1% discount rate

**THE MORE EFFICIENCY FRYER HAD A HIGHER INITIAL COST BUT A LOWER COST TO OPERATE.**

**TOTAL ENERGY SAVINGS PAID FOR THE ENTIRE INITIAL COST OF THE HIGHER EFFICIENCY FRYER.**



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*Thanks!* be  
energy  
wise

save energy, save money,  
save the environment.



**SAMPLE TEST QUESTIONS:**

**EACH DROP OF WATER COSTS YOU  
HOW MANY WAYS?**

- A: 1
- B: 2
- C: 3**
- D: 4
- E: 42

**A LEAKY REFRIGERATOR DOOR  
WASTES \_\_\_\_\_ 24 HOURS A DAY?**

- A: HOT AIR
- B: COLD AIR
- C: TIME
- D: ELECTRICITY**
- E: ICE CREAM

**AT FISHNICK.COM YOU CAN FIND?**

**A: REBATES, DESIGN GUIDES, CONTACT INFO**

**B: FOOD COSTS, WEATHER, PRESENTATIONS**

**C: SCIENCE NEWS, HANDOUTS, CHEF HATS**

**D: RESEARCH REPORTS, VIDEOS, HOROSCOPES**

**EFFICIENT LIGHTING IS A \_\_% OFF SALE?**

**A: 50%**

**B: 60%**

**C: 90%**

**D: 75%**

**E: 100%**

**F: 42%**

**THE GREENEST ENERGY IS THE ENERGY YOU \_\_\_\_\_?**

**A: NEVER USED**

**B: BOUGHT**

**C: GAVE BACK**

**D: THOUGHT ABOUT**

**E: WASTED**

**F: HAD ON ST PATRICK'S DAY**