USING ENERGY EFFICIENCY TO DECARBONIZE KITCHENS

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Frontier Energy operates The Food Service Technology Center

Partners/Clients

Pacific Gas and Electric Company

SoCalGas

Southern California Edison

SDGE

States of California Energy Commission

ENERGY STAR

Mfg., Designers, Operators

The Food Service Technology Center

Unbiased

Appliance Test Lab

Field Research

Direct Customer Support

Workforce Education & Training
Question: Can we create all-electric kitchens?

YES

The Good News

Much of the equipment is already electric and kitchen trends are moving more electric into the kitchen.
Woks, Broilers, and Rotisseries present some challenge...

Induction Wok: Just introduced at the National Restaurant Association Show
Induction plays a role but is not the total solution

Overcoming Residential Consumer Concerns

...with Science!

Research funded by:

Increased performance with a minimal change in operating cost

Question: Can we create all-electric kitchens?

Question: Can we afford all-electric kitchens?

???
The EUI Challenge


The Challenge for Food Service

The Not-So-Good News

Electric appliances can cost significantly more to operate so, we need to “design smart” in order to achieve decarbonization.

A quick annual energy-cost comparison of three, standard, baseline-efficiency appliances

Griddle
Gas = $1,250
Elec = $3,000

Fryer
Gas = $1,650
Elec = $3,750

Oven
Gas = $1,050
Elec = $2,075

$1.00/therm and $0.17/kWh
Case Study: Salt Craft

Gas = $1,000
Elec = $1,000
Induction vs. Gas Range Summary:

Similar Performance, Production, and Cost to Operate

Lower Capital Cost
Indestructible

Safer
Easy to Clean
Less Heat to the Kitchen

Gas = $350
Elec = $1,700

Gas = $600
Elec = $1,730
Annual CO₂ Reduction from Upgrading to an Efficient Gas Oven

Source: CEC Cookline Study - [https://fishnick.com/ceccook/](https://fishnick.com/ceccook/)

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Solutions?
The Kitchen of the Future
The Vision:

Replace...

The traditional cookline

The Kitchen of the Future

The Tools to Get it Done
‘After the presentation and testing some of the equipment, I am confident that they are just as good or better than conventional cooking equipment.

I am and would be a “Happy Chef” with using more energy efficient appliances.

Green Light for me.’
What We Have:
Lots of equipment choices and
The Food Service Technology Center

What We Need:
1. More equipment testing – “data for design”
2. Hands-on education and industry outreach
3. Policy Solutions that consider the operators