



# Meet Code, and Decarbonize Kitchens: Tools and Resources to Stay Competitive

Presented by: Richard Young  
Frontier Energy Food Service Tech Center



FCSI Symposium  
February 25th, 2025

**FRONTIER**  
energy

**Food Service Tech Center**

[FrontierFSTC.com](http://FrontierFSTC.com)



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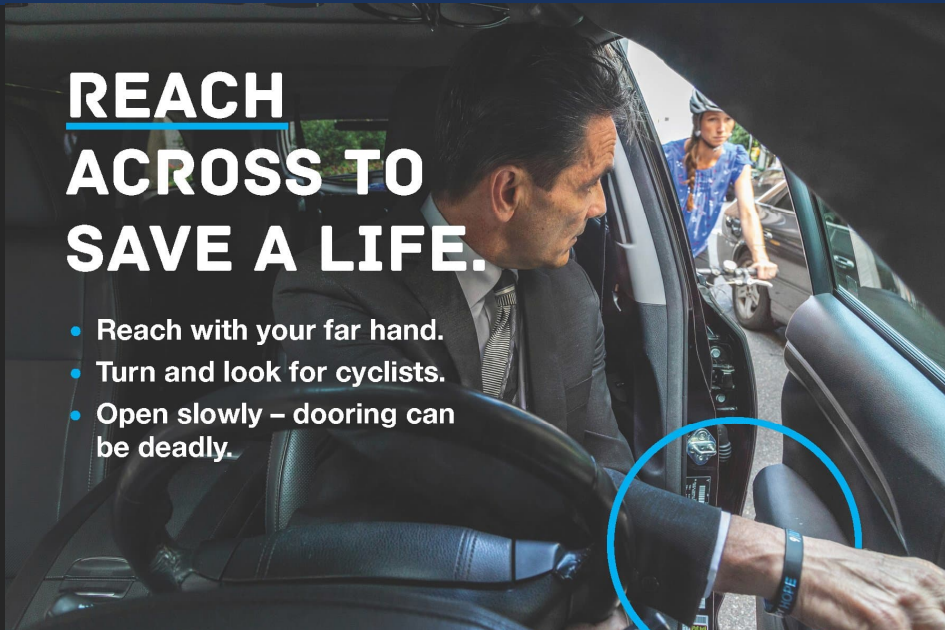
We are a fuel agnostic,  
mission-driven team

The mission is cutting carbon  
and saving water

Safety Message – The “Dutch Reach”

**REACH  
ACROSS TO  
SAVE A LIFE.**

- Reach with your far hand.
- Turn and look for cyclists.
- Open slowly – dooring can be deadly.



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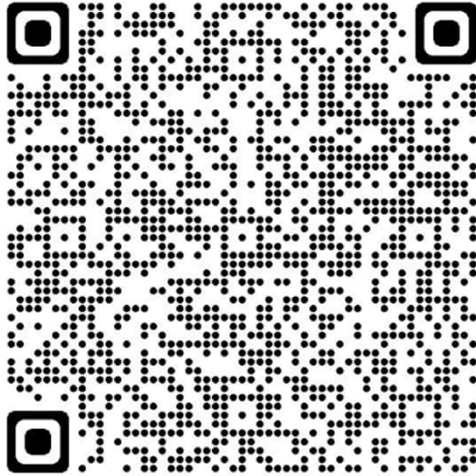
## Session Description

Clients are requesting low-carbon, green-building kitchen design points and many States are instituting stricter energy codes that impact food service equipment specification. This session will teach Consultants how to use no-cost, online tools and resources to write and hold specifications that will meet energy codes, help earn LEED points and satisfy clients' decarbonization requirements. The session will also introduce the new ENERGY STAR category for electric cooktops and provide an overview of why induction cooktops are a great place to start with kitchen decarbonization. Presented in a conversational case-study style, this session will help demystify energy standards and provide consultants with practical and actionable tools and strategies.

After attending this class, participants will be able to

1. Use the ENERGY STAR and CA Energy Wise online resources to write and hold energy-based specs
2. Use the ENERGY STAR Product Finder to verify code compliance of specified equipment
3. Make a case for why and when induction cooktops are the right transitional technology for kitchen decarbonization
4. Use the Food Service Technology Center Kitchen of the Future resources to help create better designs

We need to register you for this class:  
Please choose today's date



---

## ENERGY STAR® for Food Service Consultants

Using ENERGY STAR to Meet Code, Satisfy LEED Reqs, and Hold Spec

Presented by: ???

May 2024



# ENERGY STAR for Commercial Food Service

The ENERGY STAR program is a:

- Powerful tool to locate and specify energy efficient equipment
- Proven method of decreasing the carbon footprint of kitchens
- Trusted brand with over 22 years of CFS history
- Foundation of many utility incentive programs

The program is also a:

- Requirement for some State Building Codes
- Requirement for many LEED for Retail projects
- Powerful tool for creating and holding spec

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## Ten Major Equipment Categories

[ENERGYSTAR.gov/CFS](http://ENERGYSTAR.gov/CFS)



Ovens



Griddles



Steam Cookers



Fryers



Electric Cooktops



Refrigerators  
and Freezers



Ice Makers



Coffee  
Brewers



Hot Food  
Holding



Dishwashers


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Appliance images courtesy of Frontier Energy Food Service Technology Center – all rights reserved



# Two ENERGY STAR Tools

ENERGYSTAR.gov/CFS




**Product Finder**

ENERGY STAR products are certified to save energy.

[Explore models](#)

The database of ENERGY STAR Certified Equipment – Useful During Design and Specification



**Rebate Finder**

Our partners sponsor rebates on certified products.

Zip Code

[Search](#)

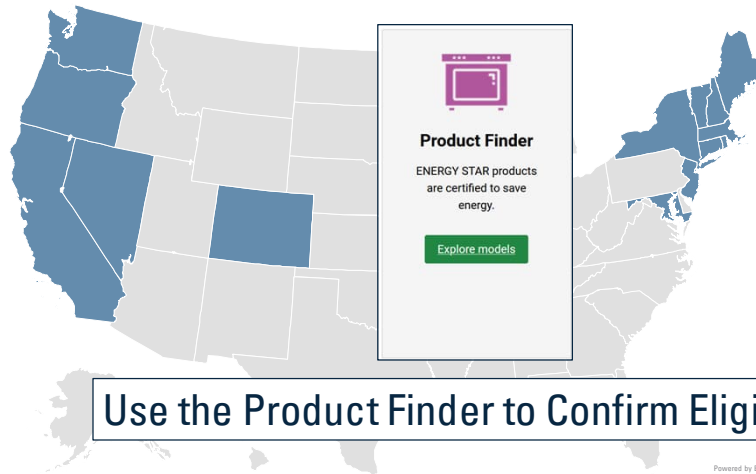
Locate Utility Incentives for ENERGY STAR Qualified Equipment - Useful in Validating Design Choices and Holding Spec

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## ENERGY STAR® is Included in the Energy Codes of 14 States and Washington DC

Washington  
Oregon  
California  
Nevada  
Colorado



Connecticut  
DC  
Maine  
Maryland  
Massachusetts  
New Hampshire  
New Jersey  
New York  
Rhode Island  
Vermont

Use the Product Finder to Confirm Eligibility

Powered by Bing  
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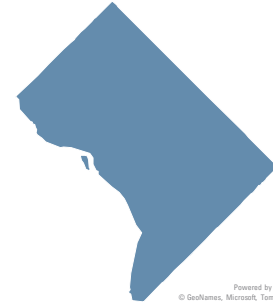
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# Instructions to Consultant for Project in Washington DC

Per 2017 DC Energy Code Section 10.5.1: The following equipment shall comply with the equivalent criteria required to achieve the ENERGY STAR label,

- a. Commercial Fryers
- b. Commercial hot food holding
- c. Commercial steam cookers
- d. Commercial dishwashers
- e. Commercial griddles
- f. Commercial ovens



Powered by Bing  
© GeoNames, Microsoft, TomTom



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## Using the Product Finder

### Type

- Large Vat (47)
- Split Vat (10)
- Standard Vat (77)
- Do not filter

### Brand Name

- Admiral Craft, Black Diamond (1)
- American Range (1)
- Anets (4)
- Anetsberger LLC (1)
- ATOSA (1)
- BKI (1)
- Electrolux (1)

[▶ Show more](#)

## Find and Compare

[Change Product](#)



ENERGY STAR Certified  
**Commercial Fryers**

Visit the [Commercial Fryers](#) page for usage tips and buying guidelines.

### Fuel Type

- Electric (47)
- Gas (87)
- Do not filter

### Width (in.)

[× Clear selections](#)

- 12 - 17.9 (85)
- 18 - 24 (49)



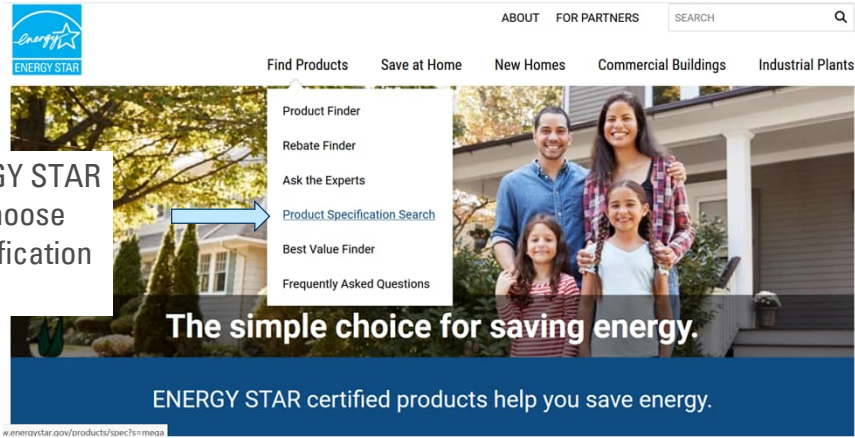
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# Use ENERGY STAR to Write and Hold Spec

ENERGYSTAR.gov/

Start at the ENERGY STAR home page and choose the Product Specification Search



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# Use ENERGY STAR to Write and Hold Spec

Scroll down to the Commercial Food Service Equipment product specifications

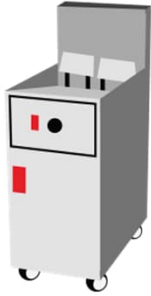
Choose the equipment category you are specifying and open the pdf document

Commercial Food Service Equipment					
Commercial Coffee Brewers	In Effect	1.1	05/18/2018		
Commercial Dishwashers	In Effect	3.0	07/27/2021	As of July 27, 2021, all commercial dishwasher products must be certified to Version 3.0	
Commercial Electric Cooktop	In Effect	1.0	08/31/2023	As of August 31, 2023, all commercial electric cooktop products must be certified to Version 1.0	
Commercial Fryers	In Effect	3.0	10/01/2016		
Commercial Griddles	In Effect	1.2	05/08/2009		
Commercial Hot Food Holding Cabinets	In Effect	2.0	10/01/2011	As of October 1, 2011, all commercial hot food holding cabinet products must be certified to Version 2.0	
Commercial Ice Makers	In Effect	3.0	01/28/2018	As of January 28, 2018, all commercial ice maker products must be certified to Version 3.0	
Commercial Ovens	In Effect	3.0	01/12/2023	As of January 12, 2023, all commercial oven products must be certified to Version 3.0	
Commercial Refrigerators & Freezers	In Effect	5.0	12/22/2022	As of December 22, 2022, all commercial refrigerator and freezer products must be certified to Version 5.0	
Commercial Steam Cookers	In Effect	1.2	08/01/2003		

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# Example of ENERGY STAR Fryer Spec



## Cooking Energy Efficiency and Idle Energy Rate Requirements – Standard Fryers

Table 2: Energy Efficiency Requirements for Standard Open Deep-Fat Electric Fryers	
Heavy-Load Cooking Energy Efficiency	> 83%
Idle Energy Rate	< 800 watts

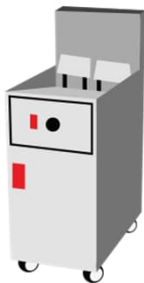
B. When testing commercial fryers, the following test methods shall be used to determine ENERGY STAR certification:

Table 5: Test Methods for ENERGY STAR Certification	
ENERGY STAR Requirement	Test Method Reference
Cooking-Energy Efficiency	<b>Standard Fryers:</b> ASTM Standard F1361-20, <i>Test Method for Performance of Open Deep Fat Fryers</i>
Idle Energy Rate	<b>Large Vat Fryers:</b> ASTM Standard F2144-17, <i>Test Method for Performance of Large Open Vat Fryers</i>

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# Example of ENERGY STAR Fryer Spec



Electric fryer models (vat width < 18-inches) shall meet ENERGY STAR specifications for energy efficiency and have a tested heavy load cooking energy efficiency of  $\geq 83\%$  and an idle energy rate  $\leq 800 \text{ W}$  utilizing ASTM Standard **F1361-20**, Test Method for Performance of Open Deep Fat Fryers.

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# ENERGY STAR Equipment Spec

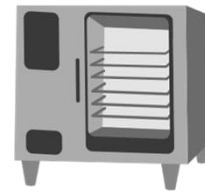
Not all ENERGY STAR equipment specs will include just energy efficiency and idle rate...



Griddles



HFHC



Combination Ovens

Idle Energy Rate Only

Efficiency, Idle, and Water



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## ENERGY STAR and the USGBC LEED Criteria



LEED ID+C: Retail · v4.1 - LEED v4.1

### Optimize Energy Performance

#### Equipment and Appliances (1–5 points)

Install a percentage (by rated power) of eligible equipment and appliances meeting the following requirements:

- ENERGY STAR equipment including appliances, office equipment, electronics, and commercial food service equipment

Eligible Equipment Installed by Rated Power:

- 20% (1 point)
- 40% (2 points)
- 60% (3 points)
- 80% (4 points)
- 100% (5 points)

**A few of pieces of ENERGY STAR CFS equipment could make the difference between 1 point and 5 points on a project**



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## In Summary:

Food Service Consultants can use the ENERGY STAR program to:

- Create Effective Equipment Specifications
- Ensure Kitchen Designs Meet Code
- Achieve LEED Project Points
- Verify ENERGY STAR Certification
- Locate Utility Incentives

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Using California Energy Wise  
[CAEnergyWise.com](http://CAEnergyWise.com)

## The Killer Resource: CAEnergyWise.com – Qualifying Products List



Easy spec language

Return on Investment

Performance Info

CA Instant Rebates

[fs.californiainstantrebates.com/qpl/](https://fs.californiainstantrebates.com/qpl/)

New Electric Range  
ENERGY STAR and CA EnergyWise  
Standards

ENERGY STAR and CA Energy Wise similar but not exact...



Efficiency  $\geq$  80%



Efficiency  $\geq$  81%

Min = 81% and Max = 91%



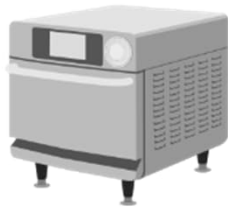
Does induction make good design sense?

Let's take a big-picture look.

Three potential starting points for existing kitchens:



Combination  
Ovens



High Speed  
Ovens



Induction

Induction makes for good show and tell!



## CapEx vs OpEx

For all equipment, except induction, CapEx for Gas  $\approx$  Electric  
& OpEx for Electric is about 2 times greater than Gas



For induction, CapEx for Elec is 2X to 3X greater than Gas  
& OpEx for Electric  $\approx$  Gas



1

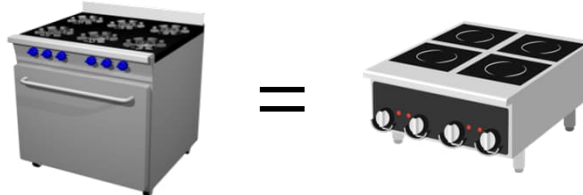
## Energy, Carbon, and Methane

Cooking Efficiency + Operational Efficiency

- Induction consumes 3.5 to 4.5 times less energy -

Cancel the increased cost of electricity

Cancel the carbon emissions on fossil fueled grid





2

## Performance - Production

30kBTU/h x 30% efficiency



= 3.5kW x 90% efficiency



3kW of useful energy = 70 lb/hour of production

3

## Cost - CapEx



<



CapEx is 2 to 3 times greater

Need \$500 to \$1000 ancillary savings per year

3

## Savings – Credits and Rebates



Depreciation and tax credits?

Utility Rebates! = \$250/hob in CA

CALIFORNIA  
ENERGY WISE

[CAEnergyWise.com](http://CAEnergyWise.com)

3

## Savings – Insurance?



Worker's Comp – reduced injuries

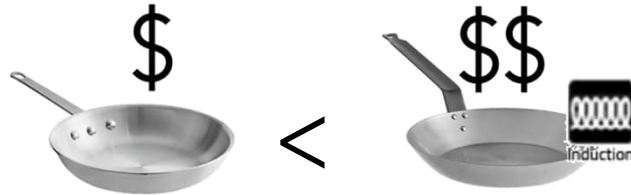
Fire – lower risk of fire



3

### Savings – Cookware?

Cookware can cost more but...



**Induction Ready**  
This item is compatible for use in induction cooking.

Cookware will last longer!



4

### Labor Savings



One hour per week @ \$20/hr x 10 years ≈ \$10,000

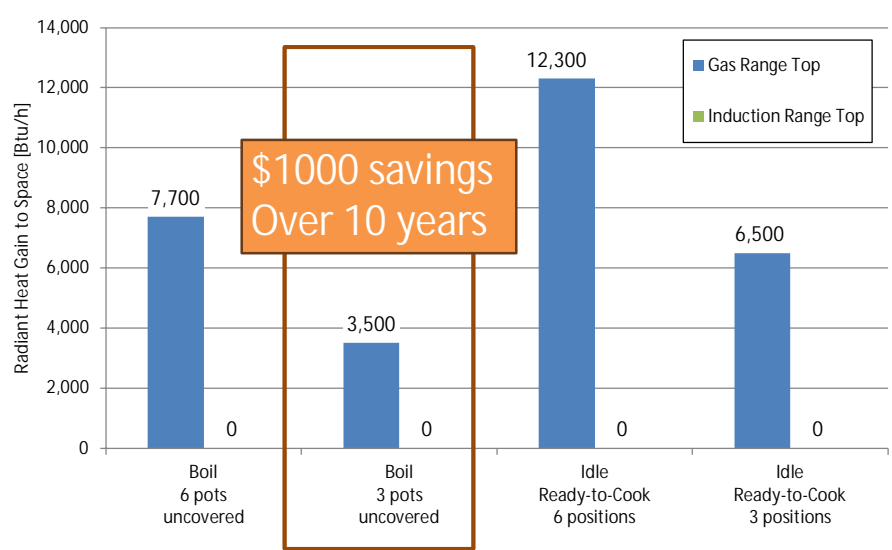


VS



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## Kitchen Comfort – Heat Gain



5

## Kitchen Ventilation and (Demand Control?)

Medium Duty  
300 CFM/LF

Light Duty  
200 CFM/LF



3 Foot induction could save \$6,000 over 10 years

## Summary

Cost Category	Gas Cooktop	Induction Hob	Difference: Induction Savings
<b>Capital Cost</b>	\$10,000	\$20,000	-\$10,000
<b>Utility Rebate</b>		\$1,500	\$1,500
<b>Energy Cost</b>	\$10,800	\$10,370	\$430
<b>Labor Savings - Cleaning</b>		\$10,000	\$10,000
<b>Air Conditioning Savings</b>		\$1,080	\$1,080
<b>Exhaust CFM Savings</b>		\$6,000	\$6,000
<b>DCKV Savings</b>		TBD	TBD
<b>Workers Comp Savings</b>		TBD	TBD
<b>Total Potential Savings</b>			<b>\$9,010 over 10-year life cycle</b>

What's Missing...?

Training!!

# Final Fun – The NEW Food Service Tech Center



Demo & Training + full AV

Bigger lab w/more flexibility

## The Consultation and Design Process

Knowledgeable Designer  
+ Motivated Client

Contacts

**FRONTIER**  
energy

**Food Service Tech Center**

WE&T



Live Demo



Site Visit &  
Design Consultation



# FrontierFSTC.com/resources/#case-studies

**CASE STUDY**

**Giorgio's Italian Grill & Pizzeria**  
Mountain View, CA

The new cookline has four 2-hob induction countertop ranges (pictured below) that otherwise would have been gas-fired infrastructure. FSTC controlled the testing, has demonstrated that induction cooktops surpass the cooking performance of comparable natural gas ranges and make for a cooler and safer work environment for kitchen staff. Cooktops with induction technology are critical to curtailing energy use in electric cooklines as traditional electric cooktops are slow, energy intensive, and radiate more heat into the kitchen space.

Giorgio's now has a new hoodline containing modern, energy-efficient, and highly productive cooking equipment. Local electricians installed the equipment in compliance with the City of Mountain View's commercial building energy code that severely restricts the use of natural gas in new construction and extensive renovation projects.

As a result, kitchen designer Susan McConnel was faced with specifying electric cooking equipment to meet the menu demands of the restaurant without sacrificing the performance associated with traditional natural gas cooking equipment.

A longtime collaborator and promoter of the Frontier Energy Food Service Tech Center (FSTC) in Pleasanton, CA, Susan considered the energy efficiency experts at the FSTC to ensure the selected equipment would provide the range production capacity and increased energy efficiency necessary to minimize the expected operating cost increase on their utility bill when going all-electric.

**CASE STUDY**

**Villa Toscana Memory Care**  
Mountain View, CA

The DiMenna family's Villa Toscana Memory Care commercial building is a new multi-story, mixed-use full-service adult restaurant in Mountain View where their former assisted living facility catering exclusively to their own memory care needs. The multi-use restaurant facility features outdoor dining, indoor lounge, an activity room, a salon, and a dining room with total service through an on-site commercial kitchen.

At the time of the Villa Toscana project's inception and permitting, City of Mountain View's new energy code prohibited the use of natural gas in new construction and extensive renovation projects. As a result, kitchen design and extensive equipment was tested with specifying electric cooktops without sacrificing the performance associated with traditional natural gas-fired cooking equipment at the Villa Toscana project.

Continued the support of the Frontier Energy Food Service Tech Center (FSTC) to ensure the equipment meets energy efficiency with a high production capacity to minimize the expected operating cost increase on their electric bill.

To maximize kitchen productivity, the FSTC team selected multi-functional and programmable cookline ovens and cook management design that is able to support the facility's batch cook management program. The combination oven and tilt skillet can hold a buffet setting. Automatic menu items with automatic management for the facility, which reduces the risk of staff accidentally leaving the equipment on.

The new building's high-end kitchen equipment is a testament to the energy efficiency and productivity of the building's new energy code. The new building's high-end kitchen equipment is a testament to the energy efficiency and productivity of the building's new energy code.

# CAEnergyWise.com/seminars



📅 March 10th, 2025

## Commercial Foodservice Energy and Economics Forecast 2025

Monday 10:00 am - 11:30 am



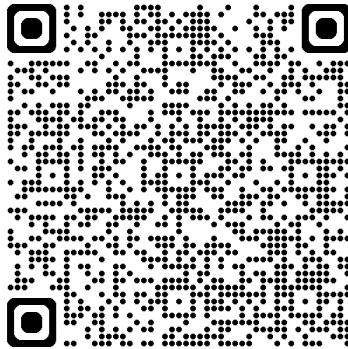
The restaurant industry is one of the most challenging business sectors. Restaurant owners in California must deal with new regulations, a challenging labor market, and rising food, utility, and real estate costs. In 2024, operators will need to remain fast, flexible, and cost conscious in order to survive and flourish. The economic drivers for the industry will include gas prices,...

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I'm going to ask you to please  
take a brief survey but first....



*Thanks!*

[RYoung@FrontierEnergy.com](mailto:RYoung@FrontierEnergy.com)



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a Better California

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energy

**Food Service Tech Center**

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The survey should only take 2 minutes  
and your responses can be confidential.

Here's how to participate:

- Click the provided link
- Or
- Scan the QR code with your phone's camera

