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

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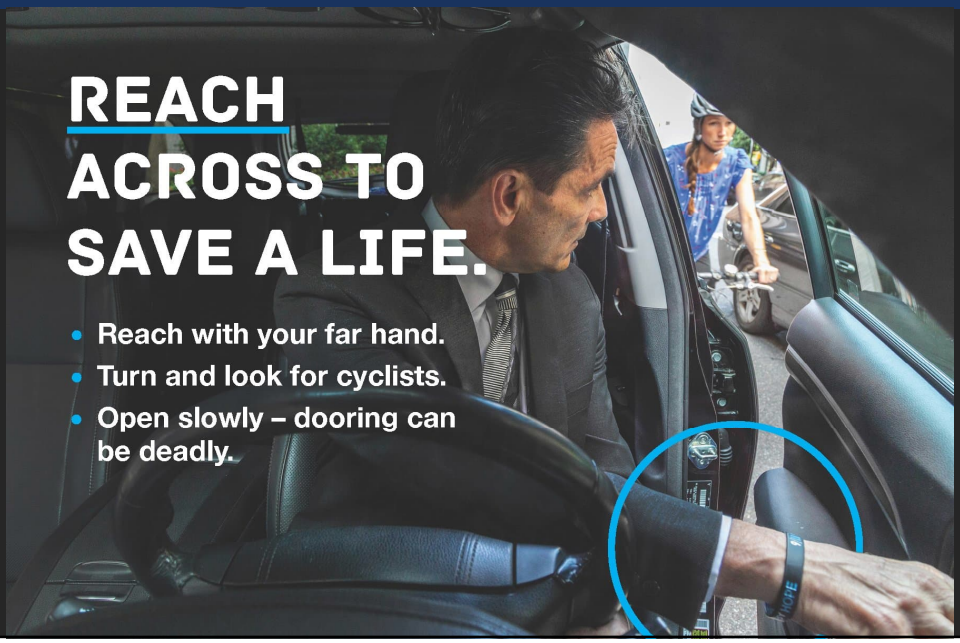
We are a fuel agnostic, mission-driven team

The mission is cutting carbon and saving water

Safety Message – The “Dutch Reach”



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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

EPA United States Environmental Protection Agency

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

Ovens

Griddles

Steam Cookers

Fryers

Electric Cooktops

Refrigerators and Freezers

Ice Makers

Coffee Brewers

Hot Food Holding

Dishwashers

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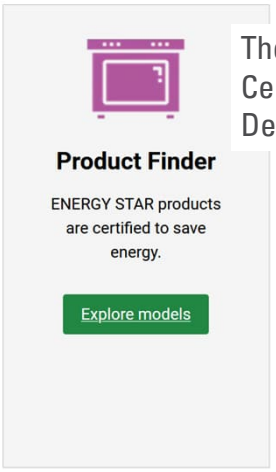
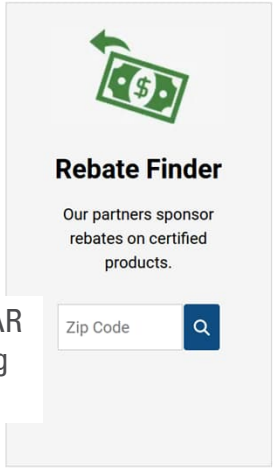
Two ENERGY STAR Tools

ENERGYSTAR.gov/CFS



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



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

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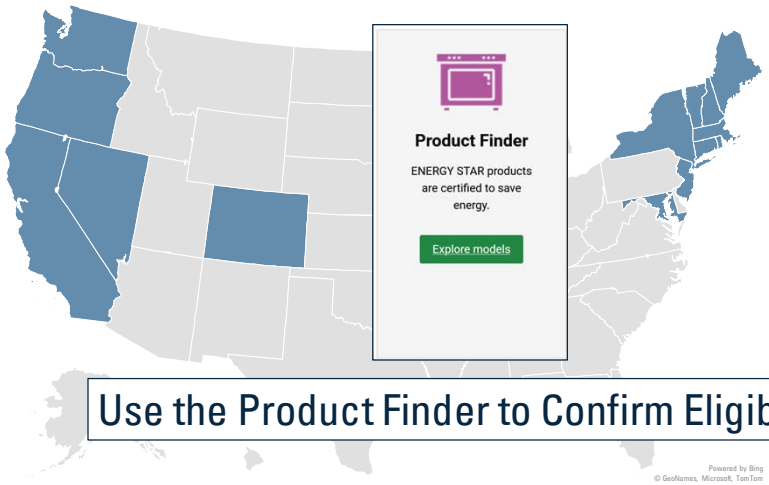
ENERGY STAR® is Included in the Energy Codes of 14 States and Washington DC

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

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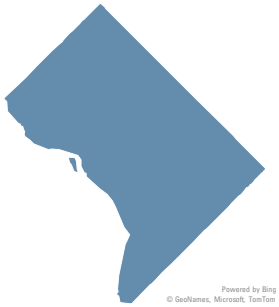
Instructions to Consultant for Project in Washington DC

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



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ENERGY STAR

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

Fuel Type
- ◉ Electric (47)
- ○ Gas (87)
- ○ Do not filter

Width (in.)
- × Clear selections
- ☑ 12 - 17.9 (85)
- ☐ 18 - 24 (49)

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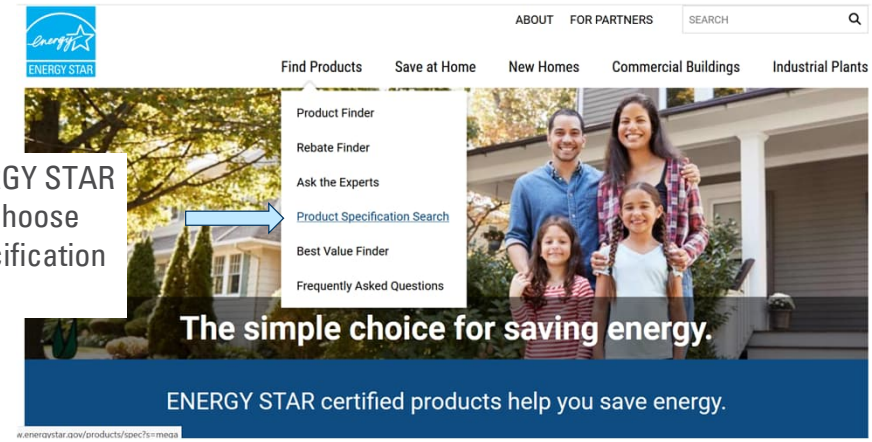
ENERGY STAR

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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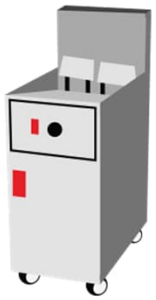
Example of ENERGY STAR Fryer Spec



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	**Standard Fryers:** ASTM Standard F1361-20, *Test Method for Performance of Open Deep Fat Fryers*
Idle Energy Rate	**Large Vat Fryers:** ASTM Standard F2144-17, *Test Method for Performance of Large Open Vat Fryers*

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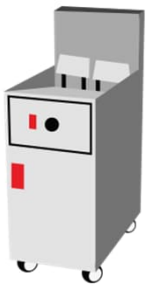
Example of ENERGY STAR Fryer Spec



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 ≥ **83%** and an idle energy rate ≤ **800 W** utilizing ASTM Standard **F1361-20**, Test Method for Performance of Open Deep Fat Fryers.

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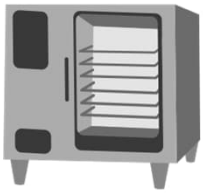
ENERGY STAR Equipment Spec

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

Griddles

HFHC

Idle Energy Rate Only



Combination Ovens

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

The Killer Resource:
CAEnergyWise.com – Qualifying Products List

Easy spec language

Return on Investment

Performance Info

CA Instant Rebates

fs.californiainstantrebates.com/qpl/

New Electric Range ENERGY STAR and CA EnergyWise Standards

ENERGY STAR and CA Energy Wise similar but not exact…

Efficiency ≥ 80%

Efficiency ≥ 81%

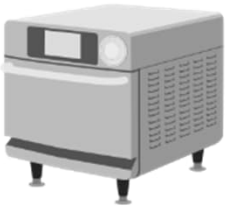
Min = 81% and Max = 91%

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 ≈ Electric
& OpEx for Electric is about 2 times greater than Gas

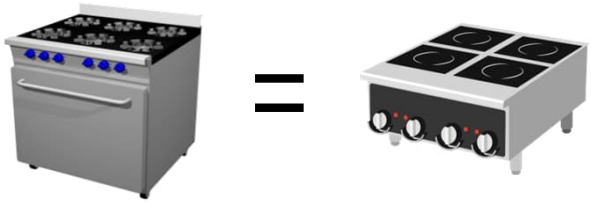
For induction, CapEx for Elec is 2X to 3X greater than Gas
& OpEx for Electric ≈ Gas

1

Energy, Carbon, and Methane

Cooking Efficiency + Operational Efficiency
- Induction consumes 3.5 to 4.5 times less energy -

Cancels the increased cost of electricity
Cancels 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

3

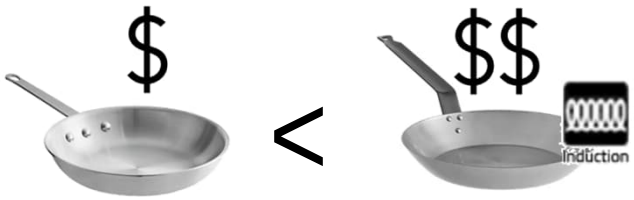
Savings – Insurance?

Worker's Comp – reduced injuries
Fire – lower risk of fire

3

Savings – Cookware?

Cookware can cost more but…

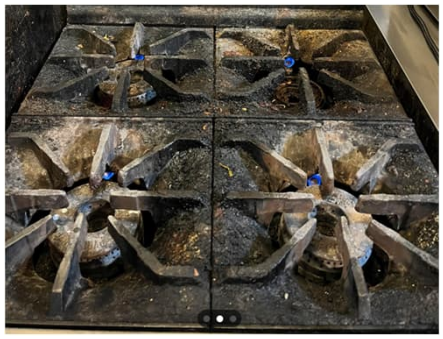


Cookware will last longer!

4

Labor Savings

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



VS

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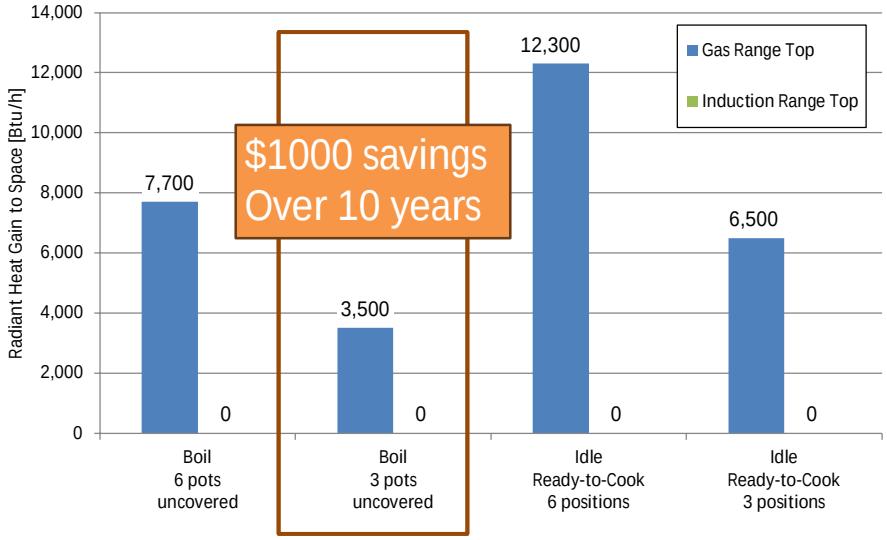
Kitchen Comfort – Heat Gain



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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
Capital Cost	$10,000	$20,000	-$10,000
Utility Rebate		$1,500	$1,500
Energy Cost	$10,800	$10,370	$430
Labor Savings - Cleaning		$10,000	$10,000
Air Conditioning Savings		$1,080	$1,080
Exhaust CFM Savings		$6,000	$6,000
DCKV Savings		TBD	TBD
Workers Comp Savings		TBD	TBD
Total Potential Savings			**$9,010 over 10-year life cycle**

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

Site Visit &
Design Consultation

Live Demo

WE&T

FrontierFSTC.com/resources/#case-studies

CAEnergyWise.com/seminars

March 10th, 2025

Commercial Foodservice Energy and Economics Forecast 2025

Monday 10:00 am - 11:30 am

Pacific Gas and Electric Company

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,...

Learn More | Register | In-Person | Remote

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

Class Survey

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