



FACT SHEET

Induction Cooking



With more than a 70% market share, gas ranges are the most prevalent cooking method in California single-family and multifamily homes.¹ Gas stoves have been promoted for years, despite their inefficiency and the increased awareness of gas cooking's negative impact on a home's indoor air quality. However, electric induction cooktops and ranges offer an alternative to gas cooking delivering ~85% of the energy they consume to heat the food compared to ~32% for gas, according to the ENERGY STAR[®] program.²

CalMTA is pursuing a market transformation initiative (MTI) that seeks to bring to market these efficient electric alternatives to Californians' kitchens. We envision that all new homes in California will be built with induction cooktops and most sales of all cooktops sold in the state will utilize induction technology.

The opportunity

While cooking technology represents a key opportunity in supporting home electrification, consumers need electric options that deliver superior cooking as well as safety and health benefits. The proposed MTI focused on induction cooking and being developed by the CalMTA team primarily targets existing and new construction multifamily and single-family homes with a focus on efficient radiant and induction products that are well-suited to serving environmental and social justice (ESJ) communities. We will pursue opportunities to evolve products and bring down the cost to make them more accessible to these consumers.

¹Highlights for appliances in U.S. homes by state, 2020. Energy Information Agency. Released March 2023.

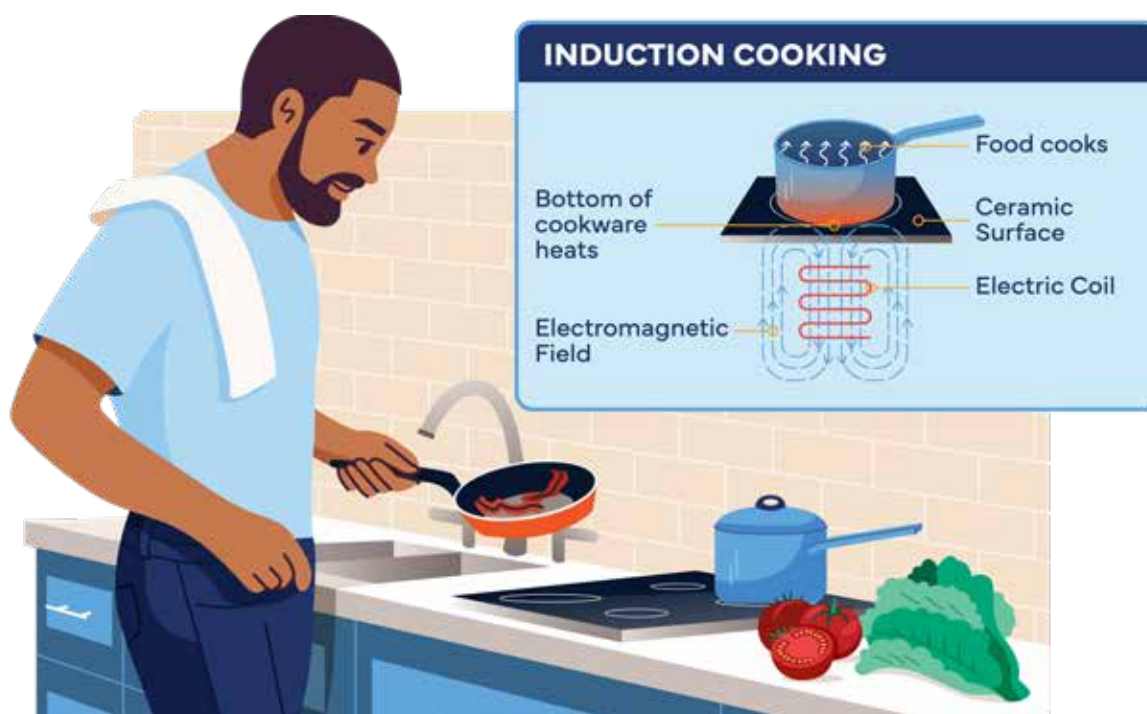
<https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Appliances.pdf>

²Energy Star Emerging Technology Award: 2020-2021 Residential Cooking Tops. Energy Star. (Undated)

https://www.energystar.gov/partner_resources/products_partner_resources/brand-owner/eta-consumers/res-induction-cooking-tops#:~:text=The%20per%20unit%20efficiency%20of,times%20more%20efficient%20than%20gas

As the kitchen is often the heart of a home and where initial upgrades or remodels begin, induction cooking can serve as a readily visible linchpin technology to increase consumer comfort with whole-home electrification. If consumers do not embrace electric cooking, then we run the risk of maintaining gas infrastructure to homes for one last remaining appliance.

Since methane leakage from gas infrastructure is a significant contributor to California's overall greenhouse gas emissions, market adoption of induction cooking can have an impact that far exceeds the site-level reduction in carbon dioxide emissions from cooking.³ Moreover, a 2013 meta-analysis found that children living in homes with gas cooking had a significant increased risk of developing asthma, with a 42% greater chance than their peers without gas.⁴ This finding has been reinforced by more recent studies, including a 2023 analysis that attributed approximately 12.7% of childhood asthma cases in the US to gas cooking.⁵



The technology

Induction cooktops reduce energy consumption by using electromagnetic induction to heat cookware directly. Unlike traditional electric, gas, or propane cooking technologies, induction cooktops use electric current passed through copper heating coils underneath a flat glass

³ McVay, Renee. Methane emissions from U.S. gas pipeline leaks. Environmental Defense Fund. August 2023. <https://www.edf.org/sites/default/files/documents/Pipeline%20Methane%20Leaks%20Report.pdf>

⁴ Lin W, Brunekreef B, Gehring U. Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children. *International Journal of Epidemiology*. 2013 Dec;42(6):1724-37.

⁵ Gruenwald, Talor, Brady A. Seals, Luke D. Knibbs, and H. Dean Hosgood, III. 2023. "Population Attributable Fraction of Gas Stoves and Childhood Asthma in the United States" *International Journal of Environmental Research and Public Health* 20(1): 75.

or ceramic surface to heat the cooking vessel. In addition to its more efficient heat transfer, induction provides precise temperature control. The direct heat transfer of electromagnetic induction results in a cool-to-the-touch cooking surface while eliminating the temperature fluctuations of electric or gas cooktops.

In contrast to many other emerging technologies, induction cooktops are a lifestyle product that interplay with sociocultural and socio-economic dynamics. Their everyday use, high visibility, and cultural importance to cooking in the home creates unique barriers and opportunities for market engagement.

MT strategy

Even though induction cooking appliances have been available for years, consumer awareness of the benefits of induction cooking is low. Some communities face cultural barriers in moving away from gas to electric cooking, with the perception that an open flame is required to properly prepare traditional dishes. Other barriers CalMTA is working to overcome are listed below as well as strategic market interventions and leverage opportunities.

Identified market barriers

- Higher cost for induction models that often include upgraded features
- Consumer attachment to gas burners and cultural barriers associated with cooking over an open flame
- Necessary technical improvements on some models
- Electric panel capacity limitations that would require an upgrade for added electric appliance needs

Market interventions and leverage opportunities

- Engage manufacturers to expand on product size and develop lower-priced models
- Coordinate and build on the product research that the CalNEXT program has already completed
- Leverage existing financial assistance programs, incentives, and rebates to offset the cost of ownership and possible electrical upgrades; encourage inclusion of induction products in direct installation and electrification programs targeting limited-income households
- Engage retailers, online retail platforms, and their manufacturer suppliers on co-marketing partnerships to build stocking and sales practices targeting ESJ communities and make use of Inflation Reduction Act incentives and tax credits
- Build awareness of induction cooking's benefits by deploying consumer education campaigns, which will include demonstrations, and forging partnerships with current programs, community-based organizations (CBOs), and local governments
- Coordinate with the California Codes and Standards Advocacy team to learn from and



build upon the valuable work this team has already completed and support the new ENERGY STAR® Residential Cooking Products specifications to serve as a key energy efficiency product differentiator

Applying an equity lens

This potential MTI would work to ensure that induction stoves are accessible and affordable in ESJ communities. This will require partnering with community-based organizations and carefully planned strategy pilot studies to understand the manufacturer, supplier, construction, and consumer voices in ESJ communities.



About CalMTA

CalMTA works to deliver cost-effective energy efficiency and decarbonization benefits to Californians through a unique approach called market transformation. CalMTA-developed market transformation initiatives also aim to advance state goals on demand flexibility, workforce development, and equity.

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