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Residential Induction Cooking Phase 2 Findings

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Legal Notice

The ComEd Energy Efficiency Program is funded in compliance with state law.

This report documents the research activities conducted and associated findings from Phase II of ILLUME's residential induction cooking research study (initiated in 2022). The initial phase (Phase I) of this project was completed in Q4 2022 and included secondary research and a literature review of fuel-switching cooking programs across the country. Phase I also included survey support and coordination with Elevate and the Affordable Multifamily electrification pilot and the development of interview guides and four interviews with key market actors.

EXECUTIVE SUMMARY

As ComEd continues to make strides toward meeting its electrification and decarbonization goals, there is growing interest in understanding the barriers that exist with regards to total electrification of the residential sector, and to understand what strategies ComEd can adopt to help overcome those barriers. Residential cooking appliances have been identified as one of those barriers, due in part to customers' affinity for cooking with gas fired appliances, as well as a litany of infrastructure barriers impeding a swift and cost-effective transition to electric cooking. While cooking appliances do not significantly contribute to households' overall energy consumption, induction cooking has the potential to serve as a highly influential technology in terms of customer acceptance of whole-home electrification. If consumers electrify most household systems, such as water heating and HVAC equipment, but do not electrify their major cooking appliances, utilities run the risk of maintaining costly gas infrastructure to satisfy the need of a single appliance.

ComEd contracted with ILLUME Advising to conduct research into the barriers, drivers, and experiences of residential customers transitioning to induction cooking appliances in their homes. Phase I of the research was completed in Q4 2022 and included secondary research and a literature review of fuel-switching cooking programs across the country. Phase I also included survey support and coordination with Elevate and the Affordable Multifamily electrification pilot and the development of interview guides and four interviews with key market actors. Phase II of this study included interviews with five participants in the ComEd whole home electrification program and a survey with retail incentive and rebate program participants, achieving 108 complete surveys from the 1,386 participants to date. Additionally, the research included secondary benchmarking of utility program offerings related to induction cooking measures and interviews with program representatives of seven of those programs. Phase II research also included interviews the most active retailer in the Retail Appliance Rebates program (in terms of number of rebates provided for induction cooking measures), secondary research to document the installation services provided by other participating retailers in the Retail Appliance Rebates Program, and one interview with a participating contractor in the Whole Home Electrification program.

Key Findings: Program Design & Delivery

Table 1 provides an overview of research findings related to program design and delivery by research area; the key findings that follow present the most relevant research findings as they relate to the recommendations included in this report.

Table 1: Program Design & Delivery Findings Summary

Research Area	Finding	Report Section
Product Costs	There are fewer affordable options for induction appliances relative to gas or electric resistance	Appendix B: Product Cost Comparisons
	ComEd incentives are lower than many other comparable utility programs	Appliance Rebate Programs
Installation Costs	The installation of an induction appliance often requires some type of electrical work to be completed.	Common Infrastructure Upgrades Needed
	Customers may be faced with the prospects of having to identify a contractor and pay them for an assessment, simply to understand how much it might cost them to undertake the installation of an electric cooking appliance.	Retailer Service Comparison
	The additional cost to run a dedicated circuit to a new electric kitchen appliance may range from a few hundred dollars to upwards of $1,500.	Retailer Service Comparison
Successful Retailers	Provision and facilitation of these required electrician services has helped to make one small retailer the most successful provider of induction appliances for ComEd to date.	Retailer Service Comparison
Peer Utility Strategies	Peer utilities commonly support the adoption of induction cooking measures through provision of incentives for the appliance itself, but also by providing financial assistance for electrical infrastructure upgrades.	Electrification Programs

Key Finding #1: More than half of survey respondents reported they completed electrical improvements prior to the installation of their induction appliance. While customers who convert to induction from a natural gas appliance require electrical work most often, customers with pre-existing electric appliances commonly require substantial electrical system improvements as well.

The installation of an induction appliance often requires some type of electrical work to be completed, potentially including an upgrade of an existing outlet at the site of the appliance, the addition of an electrical outlet at the site of the appliance where no outlet previously existed, or an upgrade of the electrical panel itself. Overall, 72% of survey respondents who converted from natural gas appliances reported performing electrical work prior to installation of their new induction appliance, compared to just 32% of customers who had a pre-existing electric appliance.

Customers converting from natural gas appliances commonly required a wide range of electrical upgrades, as more than one-quarter of survey respondents with pre-existing gas appliances (n=67) reported that they either added an outlet where one didn't exist, replaced or upgraded wiring or other electrical components, or replaced or upgraded their electrical panel or circuit box.

While customers with pre-existing electric appliances less commonly needed to add a new outlet (2%) or replace or upgrade an existing outlet (12%), 24% indicated that they replaced or upgraded their electrical panel or circuit box, demonstrating a substantial need for expensive electrical work to be performed, even for those with pre-existing electric appliances.

Key Finding #2: Provision and facilitation of required electrician services has helped to make one small retailer the most successful provider of induction appliances for ComEd to date.

Review of the Retail Products Program tracking data identified that one retailer (ABT Electronics) has facilitated nearly half (45%) of all rebates for induction measures overall, accounting for as many rebated induction measures as Amazon, Home Depot, Costco, Lowes, and Best Buy combined, even though this retailer only has one location.

The key differentiating factor identified between ABT Electronics and all other retailers concerns the services they provide to prospective customers in support of the installation of an induction appliance. ABT Electronics employs their own staff of contractors and electricians who can 1) **assess** the need for electrical work, and 2) **perform** any of the necessary electrical or gas line work, without the need for a customer to seek out and hire contractors on their own. In contrast, at other retailers, when confronted with the choice of switching to an electrically powered cooking appliance or staying with a natural gas fired appliance, customers may be informed that they *might* require some type of electrical infrastructure upgrade but are provided

no certainty whether that is the case. Customers are then faced with the prospect of having to identify a contractor, and then pay them for an assessment, simply to understand how much it might cost them to undertake the installation of an electric cooking appliance.

Customers who successfully installed an induction cooking appliance described multiple steps to identify what work would be needed in their home, including gathering cost estimates for the work, and hiring one (or several) contractors to complete the necessary work. While there is no data on how many customers decide *not* to pursue the purchase of an induction appliance because of the amount of work required to understand how much the installation will cost them, the level of commitment and engagement required from those who do install an induction stove suggests this is likely a barrier for other prospective customers.

For ABT, the contractors who perform the requisite upgrades also install the appliance itself, so that the electrical work, gas line work, and appliance installation, occur simultaneously. None of the other retailers reviewed for this research (Home Depot, Lowes, Amazon, Costco, Best Buy, Grand Appliance) employ installation teams who are authorized to perform any modifications to a home (carpentry, plumbing or electrical work). Furthermore, among the other retailers, only one (Home Depot) provides recommendations for an electrician who can perform electrical work, while the other retailers require customers to identify and vet contractors on their own.

None of the utility programs considered in this research currently employ contractor networks specifically for their induction offerings. However, *The Switch Is On* campaign, offered by the California Building Decarbonization Coalition (BDC) provides a search tool that allows customers to search for contractors for a range of electrification services, including appliance installation, and electrical upgrades and repair. Contractor pages indicate specifically whether they install induction appliances. Additionally, a representative of SMUD's utility programs indicated that they are exploring a formalized contractor network for induction measures, but this has not yet been implemented.

Key Finding #3: Peer utilities commonly support the adoption of induction cooking measures through provision of incentives for the appliance itself, but also by providing financial assistance for electrical infrastructure upgrades.

Among the 13 utilities documented in this research as providing financial incentives for induction cooking appliances, four utilities also offer some level of electrical infrastructure support to customers purchasing induction appliances.

- Two utility programs offer incentives for panel upgrades, with one offering a $750 incentive to those converting from a natural gas appliance, and another offering $1,000 to customers replacing a 100-amp panel.

- Two utilities provide incentives for the addition or upgrade of dedicated circuits for new electric appliances, with one utility offering a $400 incentive per circuit, and one offering a $500 incentive per circuit.
- One utility provides a specific "cooking circuit prewiring" incentive of $500, which is considered an add-on measure for customers installing a heat pump or heat pump water heater.

Key Findings: Marketing, Education, and Outreach

Table 2 provides an overview of research findings related to marketing, education, and outreach by research area; the key findings that follow present the most relevant research findings as they relate to the recommendations included in this report.

Table 2: Program Design & Delivery Findings Summary

Research Area	Finding	Report Section
Adopter Characteristics	When compared to the general population, adopters of induction appliances are significantly older, less racially diverse, substantially more educated, and more affluent/financially secure	Adopter Demographics
Induction Awareness	Word of mouth is the strongest source of induction awareness (48%); ComEd's marketing efforts were not commonly cited (6%).	Induction Awareness: Retail Participants
	Most survey respondents were aware of induction technology before they began the process of shopping for their new appliance.	
	Induction awareness was low among WHE participants.	Induction Awareness: Whole-Home Electric Participants
Marketing Messages	Adopters recalled hearing positive messaging prior to their purchase related to energy efficiency, safety, water boiling speed, and ease of cleaning; also recalled negative messages concerning compatibility of pots and pans and high costs.	Induction Awareness: Retail Participants
	Information recall is largely relative to existing appliance fuel as Natural gas customers had higher recall of environmental benefits, cooking precision relative to gas appliances, and installation costs	

Research Area	Finding	Report Section
Purchase Motivations	Relatively even distribution of adoption in various replacement contexts (those with appliance issues, no appliance issues, and major life changes)	Purchase Motivations
	Energy efficiency was the most cited purchase motivation overall	
	Natural gas customers demonstrated a higher priority for environmental benefits, ease of cleaning, and safety	
	Electric customers are more motivated by technical aspects (speed of water boiling, cooking precision)	

Key Finding #4: In-person cooking demonstrations and "Chefluencer" events have been widely implemented in California. While the demonstrations lead to increased awareness and positive opinions about induction among attendees, peer utilities interviewed for this research cautioned against reliance on this strategy as an effective medium to significantly increase adoption of induction technology.

To support the adoption of induction cooking appliances across California, the California Market Transformation Administrator (CalMTA) piloted a "Chefluencer Event Testing Strategy" in 2024.[1] For this pilot, CalMTA engaged and contracted with the Building Decarbonization Coalition (BDC) to host a series of Chefluencer events throughout California between August and October 2024. In these live events, experienced chefs lead engaging, multilingual, culturally relevant cooking demonstrations on induction cooktops. This approach was intended to build consumer acceptance and awareness through marketing and education campaigns and is just one of eight strategic interventions identified in the CalMTA market transformation Logic Model.[2]

Key survey findings from this pilot included:

- An increase in positive opinions about induction appliances following the event.
- Respondent takeaways on the primary benefits of induction appliances indicated environmental impacts, health, and safety considerations.

[1] CalMTA is a program of the California Public Utilities Commission and is administered by Resource Innovations. They work to deliver cost-effective energy efficiency and decarbonization benefits to Californians through market transformation approach, intervening in a market to create lasting change by removing market barriers or exploiting opportunities, accelerating the adoption of identified technologies or practices.

[2] https://calmta.org/wp-content/uploads/2025/04/Appendix-A-Logic-Model-for-Induction-Cooktops.pdf

- The reported likelihood that respondents would buy an induction appliance if their current one failed or they were remodeling their kitchen increased after attending the event.
- The educational and informational content provided during the event was beneficial to respondents' overall knowledge and opinions of induction appliances.

Interviewed peer utilities echoed the pilot's survey findings with regards to the increase in customer education, awareness, and stated likelihood to purchase an induction appliance. However, these peer utilities also cautioned against reliance on this strategy as an effective medium to significantly increase adoption of induction technology, due to a belief that early adopters are driving more widespread adoption of induction appliances, and that there is little cross-over between attendees of cooking demonstrations and rebate program participants (although there was no survey data or evaluation reports to support this assertion). These program representatives added that, in general, webinars and in-person events are becoming less effective in terms of turning into actual projects.

Key Finding #5: Natural gas cooking appliances can serve as a motivation for customers adopting induction, rather than exclusively a barrier. The safety, environmental benefits, and cooking precision/performance of induction appliances may be particularly important to customers who convert from natural gas to induction.

Pre-existing natural gas appliances are commonly seen as a barrier to induction adoption due to 1) the potential for extensive electrical work necessary to accommodate a new electric appliance and 2) the affinity that many people hold for cooking with gas appliances. However, survey results showed that customers largely consider the relative benefits of induction in terms of the type of appliance they previously had/currently have.

Adopters of induction appliances who previously had natural gas appliances commonly expressed motivations for their purchase of an induction appliance that indicated a desire to get rid of their gas appliance. The survey results showed that:

1. Customers with pre-existing gas appliances were more attracted to the safety of an induction appliance:
    - 18% of gas customers and 3% of electric customers reported that their **previous appliance** was **unsafe**
    - 52% of gas customers and 39% of electric customers reported that a **motivating factor** in their purchase was that induction cooking appliances are **safe**

2. Customers with pre-existing gas appliances were more interested in the energy efficiency and environmental benefits of an induction appliance:
    - 70% of gas customers and 46% of electric customers reported that a **motivating factor** in their purchase was that induction cooking appliances are **good for the environment**
    - 83% of gas customers and 59% of electric customers reported **hearing information** that induction cooking appliances are **good for the environment**
3. Customers with pre-existing gas appliances were more interested in the cooking performance of an induction appliance:
    - 57% of gas customers and 44% of electric customers recalled hearing that induction appliances offer **more precise** cooking **than natural gas cooking appliances**

Recommendations

Recommendation #1: ComEd should focus efforts on 1) ensuring that customers who are interested in induction cooking appliances can easily find contractors who can perform the requisite electrical work needed to accommodate appliance installation, and 2) ensuring that customers who are interested in induction cooking appliances can afford the required electrical work when necessary.

One opportunity for ComEd to support the increased adoption of induction technology is through provision of services, or incentives for services, to identify and complete the requisite electrical work necessary to accommodate the installation of an induction appliance. Specifically, ComEd should:

1. **Work with the ComEd network of Energy Efficiency Service Providers to develop induction or cooking electrification support for customers.** Actively promoting a network of electricians will enable customers to have a more streamlined experience, including understanding what work is required to accommodate the installation of an induction appliance and complete the work should the customer elect to proceed.
2. **Incentivize the cost of the electrical assessment at a minimum**. When confronted with the choice of switching to an electrically powered cooking appliance or staying with a natural gas fired appliance, customers may be informed that they *might* require some type of electrical infrastructure upgrade but are provided no certainty whether that is the case. Customers are then faced with the prospects of having to identify a contractor, and then pay them for an assessment, simply to understand how much it might cost them to undertake the installation of an electric cooking appliance. Incentivizing, at a minimum, the cost of the assessment to determine the cost of necessary electrical work may serve as a substantial influence on the number of customers who continue to explore induction as an option.
3. **Consider additional incentives for requisite electrical upgrades.** Within the context of a larger electrification project, the additional cost to run a dedicated circuit to a new electric kitchen appliance may only be a few hundred dollars; however, if that is the *only* work being conducted, requiring the contractor to send a truck and an installer solely for that project, then the cost will be significant relative to the scope of work, potentially upwards of $1,500.

Recommendation #2: Marketing messages should focus on the safety and cooking precision/performance of induction appliances.

It is important for ComEd to continue to raise the overall awareness of induction appliances and their benefits. The safety and cooking precision of induction appliances were motivating factors in the purchase decision of all survey respondents, particularly those converting from natural gas appliances. Beyond that, these benefits came

through even more clearly after-the-fact when adopters shared what they valued about the induction cooking appliance. These benefits can be presented independently, without framing them as a direct comparison to natural gas.

Recommendation #3: Temper expectations from "Chefluencer" events and similar webinars, and potentially avoid them entirely, at least for the time being.

Interviewed peer utilities cautioned against reliance on "Chefluencer" events as an effective medium to significantly increase adoption of induction technology, due to a belief that early adopters are driving more widespread adoption of induction appliances.

There is little cross-over between attendees of cooking demonstrations and rebate program participants (although there was no survey data or evaluation reports to support this assertion). These program representatives added that, in general, webinars and in-person events are becoming less effective in terms of turning into actual projects. As such, ComEd should dedicate marketing efforts and available resources to ensuring that customers who are already actively interested in purchasing an induction appliance have the means and resources to do so.

Recommendation #4: Identify opportunities to conduct research with the general ComEd residential population.

One limitation of this research is that the primary customer research was conducted almost exclusively with active participants of ComEd's programs: that is, early adopters of the technology. A general population study or true non-participant research was outside of the scope and budget capabilities of this research. While there is considerable knowledge to be gained from participating customers concerning their motivations, their priorities, and their experiences, we acknowledge that findings garnered from these customers represents the perspectives of customers who successfully navigated the barriers imposed on customers attempting to adopt induction technology, either due to their personal desire for the specific technology, or the financial means to overcome certain challenges. To understand the needs and motivations of customers who may benefit from an induction appliance, but who have not been able to attain one, it is necessary to conduct primary research with true non-participants of any of ComEd's induction offerings.