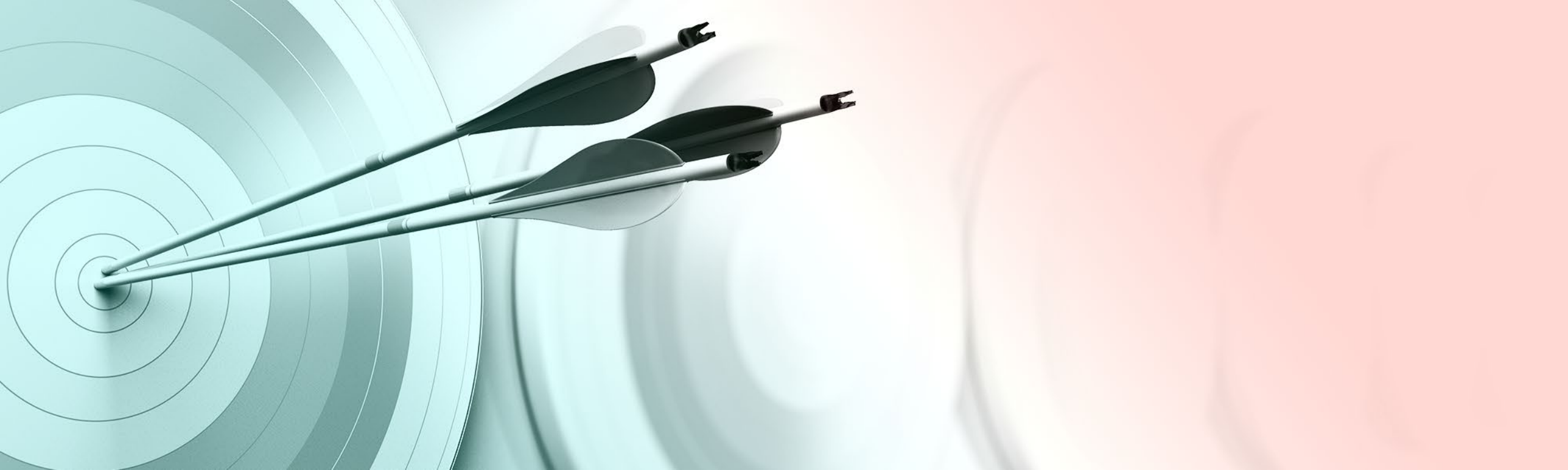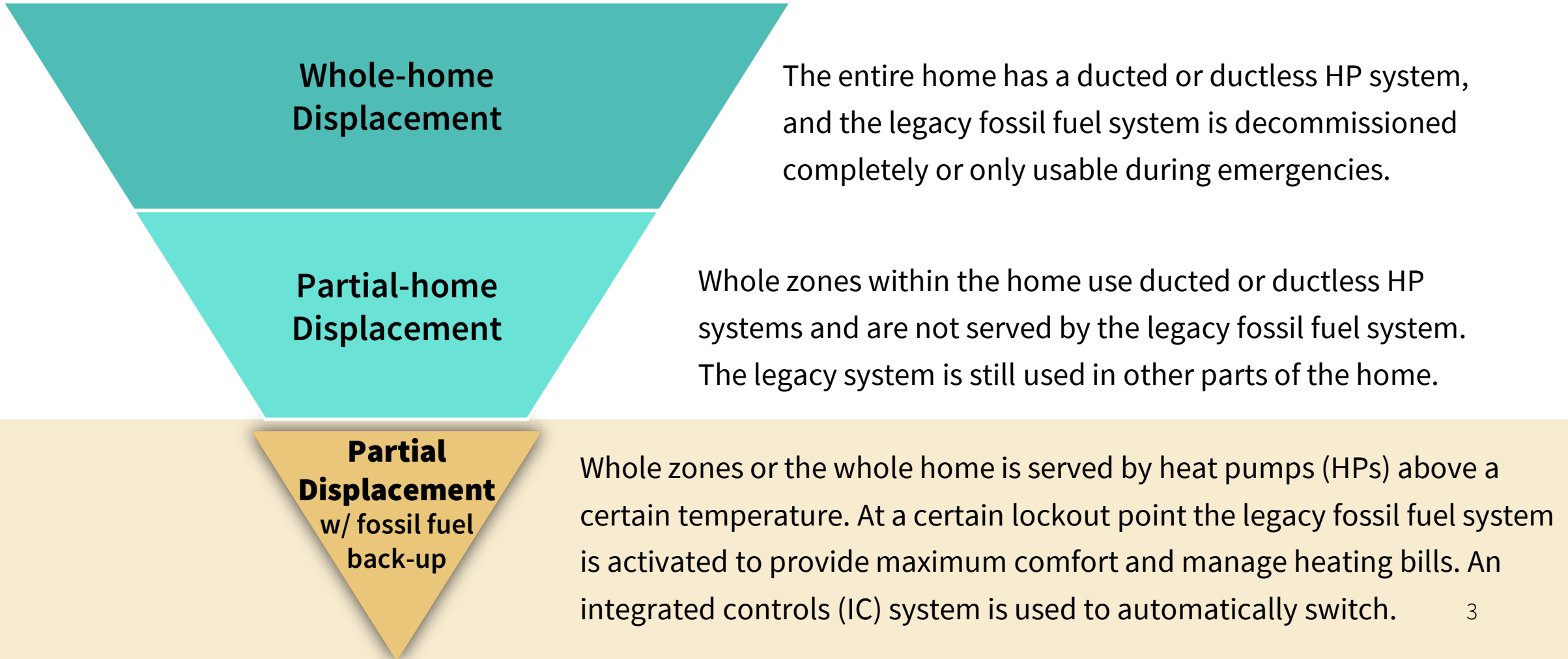ILLUME

Under Control

Customer Experience with Integrated Controls to Manage Heat Pumps

Gita Subramony

BECC - November 13, 2023

There are a Variety of Program Pathways for Customers to Displace Fossil Fuel for Heating.

Whole-home Displacement

The entire home has a ducted or ductless HP system, and the legacy fossil fuel system is decommissioned completely or only usable during emergencies.

Partial-home Displacement

Whole zones within the home use ducted or ductless HP systems and are not served by the legacy fossil fuel system. The legacy system is still used in other parts of the home.

Partial Displacement
w/ fossil fuel back-up

Whole zones or the whole home is served by heat pumps (HPs) above a certain temperature. At a certain lockout point the legacy fossil fuel system is activated to provide maximum comfort and manage heating bills. An integrated controls (IC) system is used to automatically switch.

3

Customers Motivations Might Not Always Align with Program Goals to Displace Fossil Fuel Heat.

59%
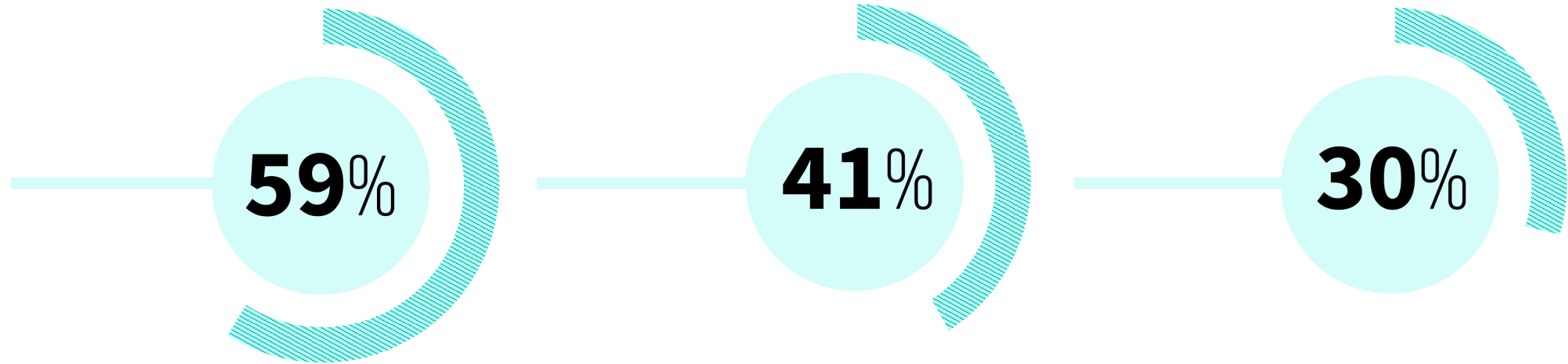
Customers who wanted to install heat pumps

- To be more energy efficient
- To upgrade their cooling/ get rid of window ACs

41%

Customers whose motivation for installing heat pumps was to get rid of windows ACs.

30%

Customers who said their primary motivation for installing integrated controls was to receive the rebate.

A substantial portion of customers are installing mini-split HPs and ICs in cases where the HPs are used as supplemental, though program intention is for the HPs to be used as primary with the legacy fossil fuel system as backup and the IC controlling which system is active.

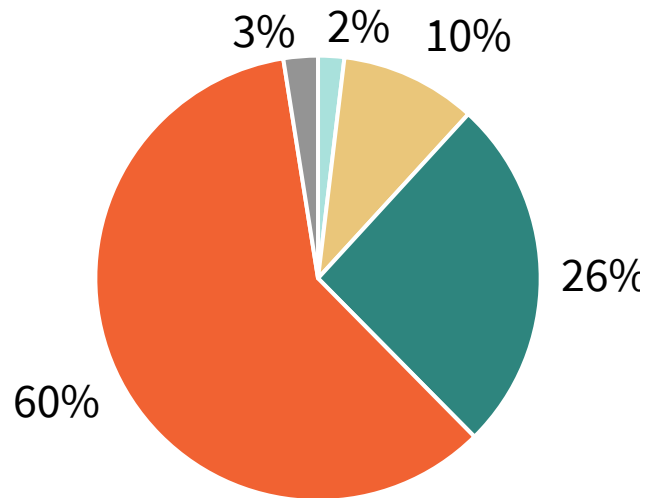## Heat Pump as Primary Heat Source

Don't know **6%**

HPs are not primary heat source, **46%**

HPs are primary heat source, **48%**
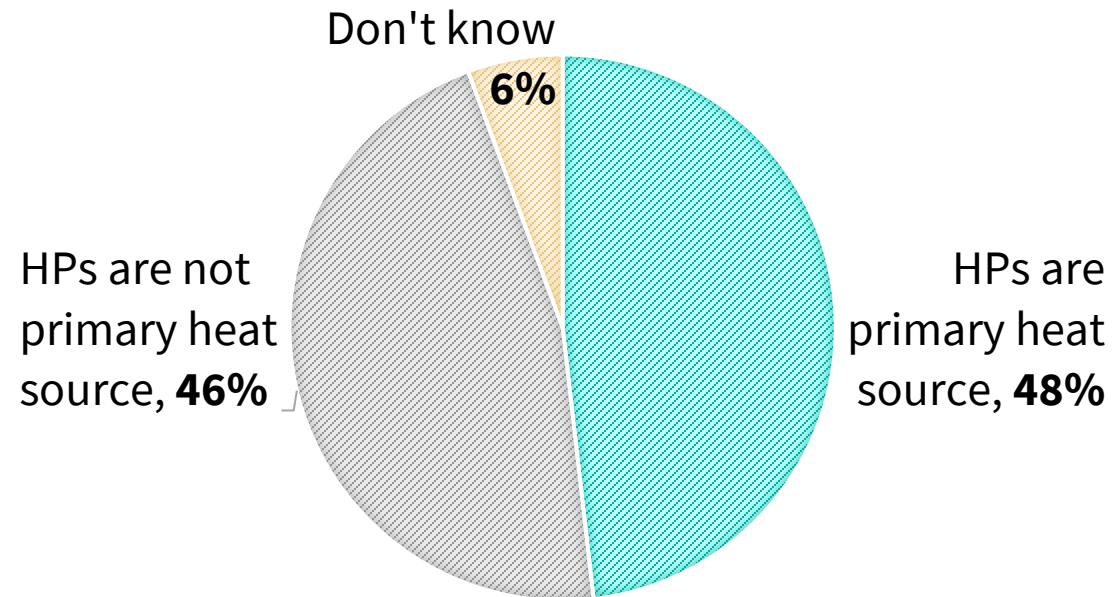
Use Integrated Controls to Automatically Switch Heating Source
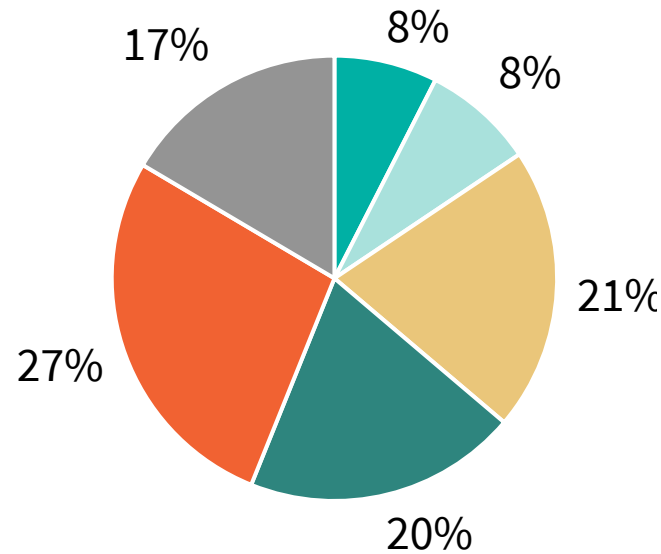

Don't know **10%**

No **44%**

Yes **46%**
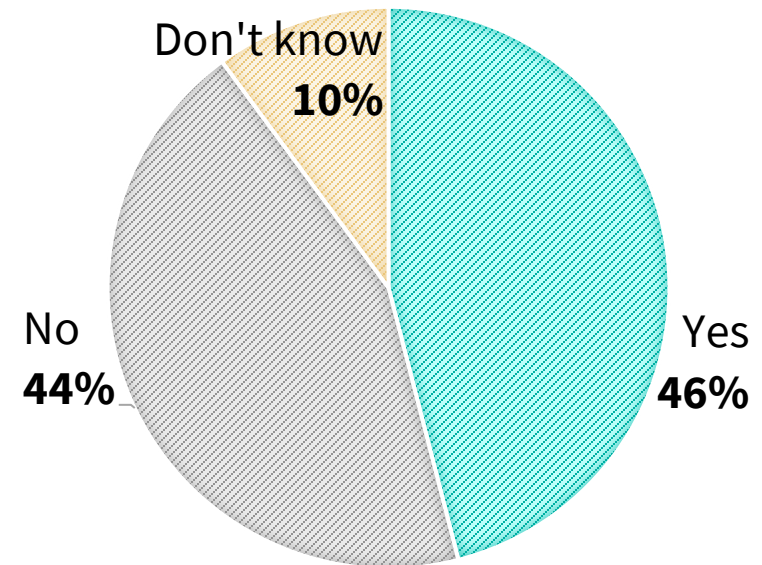
Customers Are Satisfied With Their Heat Pumps, But Less So With the Integrated Controls.

Heat Pump Equipment Satisfaction — 3%, 2%, 10%, 26%, 60%

Integrated Control Satisfaction — 17%, 8%, 8%, 21%, 20%, 27%

"The integrated control system is easy to use." — 8%, 4%, 11%, 22%, 28%, 27%

Legend:
- 5 – Very satisfied/ Completely agree
- 4
- 3
- 2
- 1 - Not at all satisfied/ Not at all agree
- Don't know
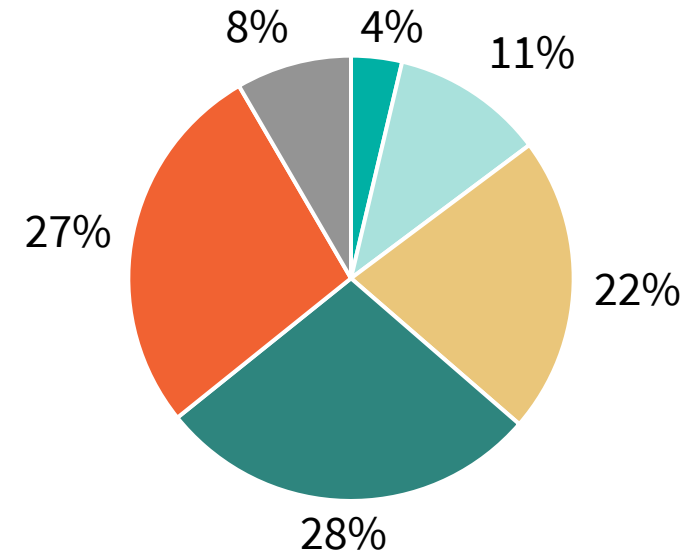
In Some Cases, ICs Are Being Deployed in Scenarios Where They Are Not a Value-Add for the Customer.

- Some customers are installing mini-split HPs in single rooms as supplemental heat and are installing the ICs **just to get the incentive**. Many customers opt for **manual control** of their HP systems and legacy fossil fuel systems and some contractors recommend this strategy. ICs are installed to receive the incentive.

- Customers and contractors report issues around difficulties using the IC app on their phones and **Wi-Fi connectivity issues** between the app and the HPs.

- Contractors feel the ICs can be **cumbersome** to set up and complicated for customers to use, resulting in call-backs.

- Customers feel they **don't have enough information** from contractors on how to use the ICs.

Contractors Reflect Skepticism of IC Technology and Reflect That They Are Being Installed in Cases Where They Are Not Vital.

"…sometimes the homeowners think that they want their rebate – 'how do I get that?' You need ICS- 'alright I'll get those, I don't care how they work,' they just want the rebate. I think a good 30-40% of the market is like that…"

"I don't think requiring the IC on ductless is necessary – people can easily turn them on and off and turn on their backup, everything doesn't have to be automated. If you have it designed correctly, we don't have to force the IC. It's nice, but it's not there yet, I don't really see the necessity of it."

"ICs work good [sic] where you…can cover the…whole home…with an IC package – it's a whole-home heating system…You don't need to put the boiler on unless it's an absolute emergency. Those are the true people that really want [HPs and ICs]. They're concerned about the environment. They want clean heat."

Enhanced Trainings and Education for Both Contractors and Customers Will Help Align Installations With Program Goals.

- Clearly articulate the use case for ICs with partial displacements and associated program requirements to ensure projects contribute to program goals.

- Enhance trainings for contractors on IC use cases and how to educate customers.

- Provide educational resources to customers on HPs and ICs that outline operational FAQs and reasoning behind switchover temperature.

Contact

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