

All About the Heat Pumps

The Importance of Educating Consumers & Training Installers



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Studies

Guidehouse ILLUME **codeo**

Energy Optimization Fuel Displacement Impact and Process Study (MA20R24-B-EOEVAL)
Final Report
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Phase 2 in progress



ComEd

Energy Efficient Electrification
Communication Research

10.10.2022



Pacific Northwest National Laboratory

Advancing Energy Efficiency Behaviors Findings
Webinar

ILLUME Advising
January 26, 2023

Meet Customers Where They Are

We need to understand

- How customers consider and prioritize home upgrades
- How customers feel and think about operation and maintenance of home systems and appliances
- How customers think about (or don't) about energy efficiency, electrification and heat pumps
- How all of this varies by customer type



Decision Making Framework

Attitudes Towards Home

- Why did people choose their home
- Favorite and least favorite parts of their home
- Rooms or features they focus on

Orientation Towards Home Maintenance

- Regular maintenance vs. emergency maintenance
- Feelings of empowerment/disempowerment
- Prior experience with home cleaning/maintenance
- Life stage

Change-Making Resources

- Knowledge (available tech, how to make upgrades, how to use post-installation)
- Access to experts (contractors, online resources, friends/family)
- Agency over their space (e.g., rent vs. own)
- Access to technologies/materials
- Financial
- Time



Building/Room Characteristics

- Existing equipment/infrastructure
- Equipment requirements
- Space

Influence of Others

- Influence of others in household
- Influence of experts
- Influence of broader social networks

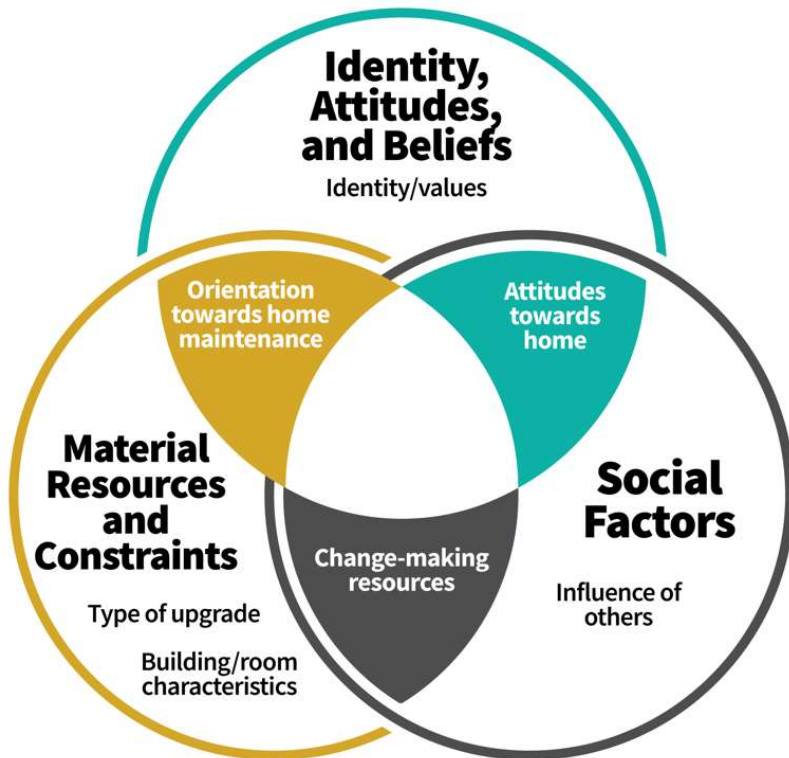
Type of Upgrade

- Contractor vs. DIY
- Level of technicality
- How visible/invisible

Identity/Values

- Self-perception in relation to home/technologies
- Values and priorities

Interactions and Influence



Identity, attitudes, and beliefs include elements of decision-making related to values and personal identity, which may shape attitudes towards the home and different equipment and features of the home

Social factors include the influence of others and signal the important impact of other people, including family, friends, neighbors, and the broader community, on an individual or household's decision-making.

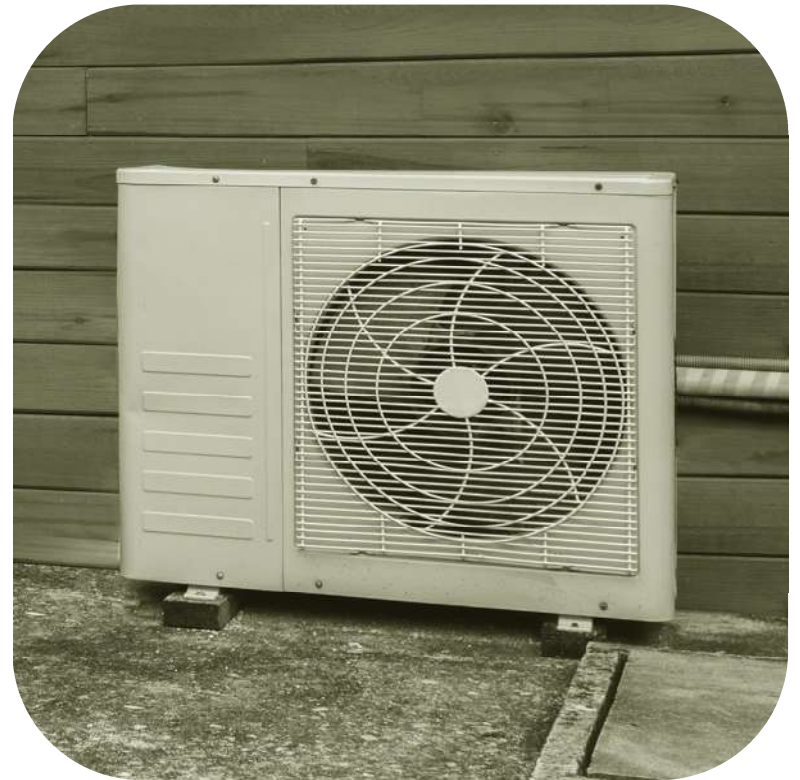
Material resources and constraints include those elements of decision-making that are constrained or shaped by the specifics of the building and room, the material and time resources of the decision-maker, as well as the specifics of the potential upgrade.

Understand What Consumers Need to Know

We need to help customers understand

- Potential bill impacts

- How to operate and maintain the heat pump



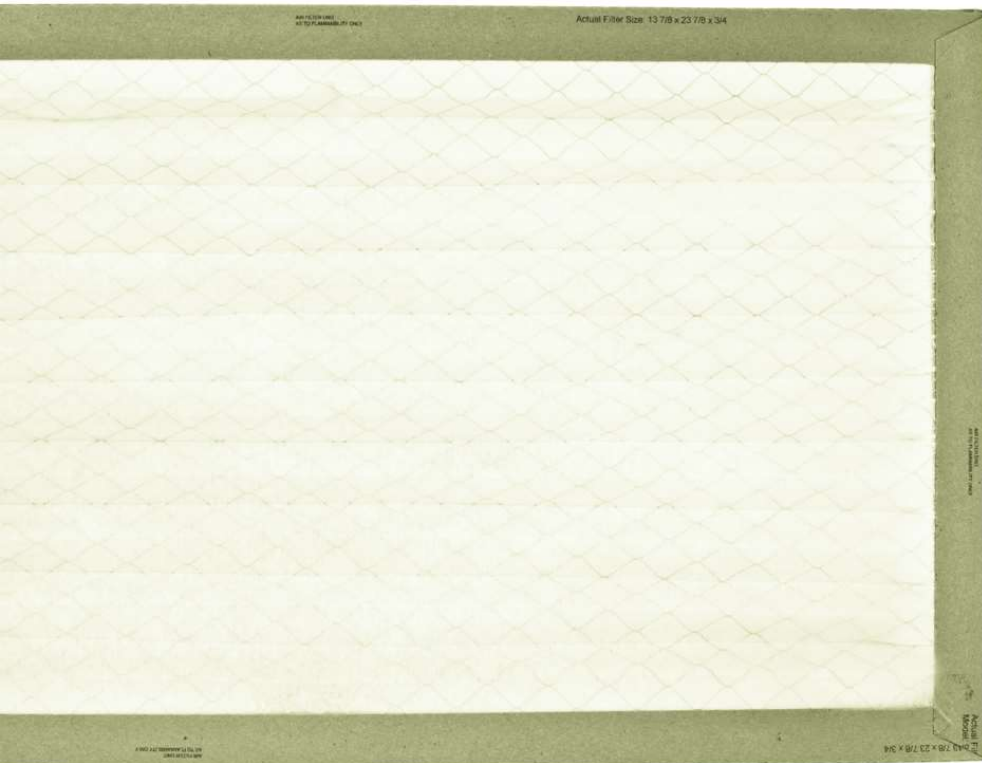
Bill Impacts

For heat pump installations, it is critical for customers to understand how their **behavior** can impact their energy bills.

The message delivering the potential bill impacts should be **simple and straightforward**, but some customers will seek more detailed information about the equipment and how it works. More detailed resources to which you can point these customers will be helpful.



Operation and Maintenance



Topics to consider for operational education

- How to use and maintain the equipment
- Expectation setting regarding variation in thermal comfort and system operation across system types (boilers vs. heat pumps)
- Setpoints
- Control and app support
- “Setting and forgetting”



Controls



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Integrated Controls

Integrated controls are designed to prioritize heating system (resistance, furnace, boiler, HP) operation based on outdoor air, weather conditions and programmed set points.

What do customers and contractors need to know about integrated controls?

Are integrated controls products ready for widespread use and market adoption?

Can we scale adoption (and savings) in partial displacement settings without them?



“They are just not there yet - there’s not enough flexibility, they fail a lot, customers don’t understand them.”

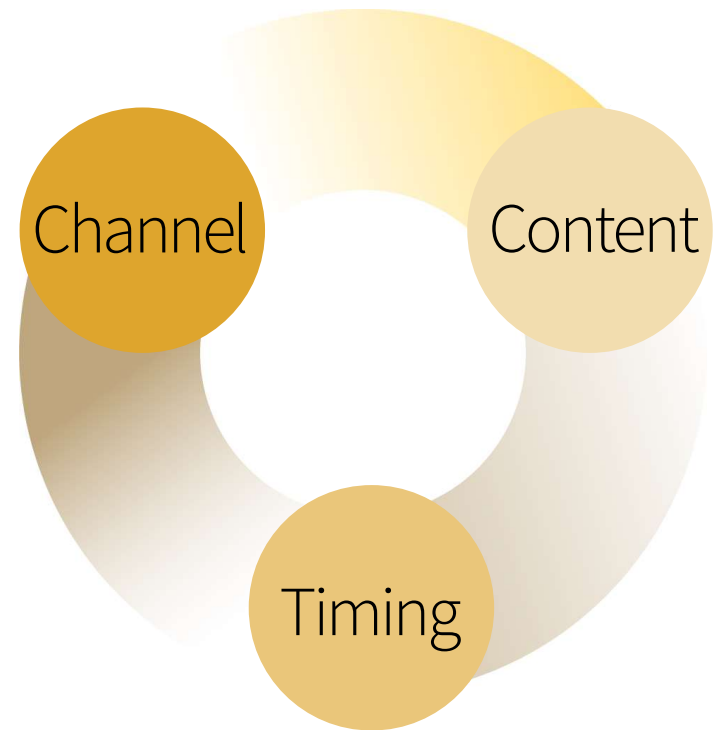
Optimize Communication

We need to consider three factors in communication

The messaging

The timing

The messenger(s)



Message Content

The level of detail needed in message content varies.

The amount and type of information a customer will need to understand the benefits, impacts and operation requirement of heat pump technology appears to vary significantly across customers and **is correlated with their interest in the project process overall.**

Contextual information most desired by respondents:

- If it will save money on their utility bills (59%)
- How safe the new equipment will be (50%)
- How energy efficient the new equipment will be (48%)
- Why their utility would offer a program like this to customers (47%)

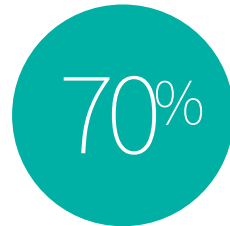


Addressing Safety

Home being safe and healthy to live in is a **priority**



OWNERS

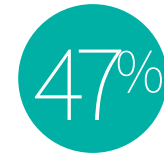


RENTERS

Safety as the **most important** priority



OWNERS



RENTERS

Safety as a motivation for **heating** preference



ELECTRIC

26%



GAS

20%

Safety as a motivation for **cooking** preference



ELECTRIC

19%



GAS

4%

Some customers orientation to electric heat may include associations to electrical fires, or of space heaters plugged into dangerously overloaded power strips or wall outlets

Communication Timing

Ongoing communication including multiple touchpoints is necessary to raise customer awareness and their level of understanding of heat pump technologies.

Timing of messaging can be broken into three somewhat distinct categories: **priming messages** that a customer receives prior to being presented with a heat pump upgrade for their home, **situation specific** information of a project including the potential bill impacts, and **operational information** that a customer needs to know in order to live with and operate their new equipment.



The Earlier the Better



57% of survey respondents indicated they were familiar with the term **energy efficiency**

22% were familiar with either **fuel switching or electrification**

21% indicated they had heard of a **heat pump**

Communication Channels

Different customers may put more trust in different actors, so it is important that the information they receive is consistent across all engagements, and that **any new information confirms or builds upon the messages that they have already received.**



Who are our best messengers?

For heat pump upgrades, contractors are critical to recommending equipment, installing it, and educating customers on how to use it.

Current programs primarily lean on the contractors' relationship with customers to promote heat pumps.

But are contractors ready for this and the right fit for this role?

Can we connect customers to any contractor?



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What Next?



Renters and property owners

Controls and integrated controls

Connecting customers with trained
contractors

What else?

Questions?

We've Got Answers

Contact

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