
Cadmus ccASHP Market Barriers & Opportunities - Webinar Q&A

Broadcast Date: April 1, 2020

Questions not answered during webinar

Are there any plans promote ground source heat pumps?

We did not explore this in our research

I think you mentioned there wasn't a change in the responses based on existing heating system - can you say more about why you think that is?

In our “willingness to pay” analysis, we did not find any significant differences in willingness to pay at any incentive levels for any particular demographic group. We did find some differences among demographic groups for a few of the findings.

- For example, ASHP-aware respondents with a college degree were more likely to agree that ASHPs provide energy-efficient heating in cold weather than respondents without a college degree. Similar to this result, ccASHP-aware respondents with a college degree were more likely to agree that ccASHPs can provide energy-efficient heating in cold weather than respondents without a college degree.
- Two ductless ASHP features showed a higher appeal level for homeowners with existing ducted heating or cooling systems, compared to those with ductless systems: the evenness of heating, cooling and dehumidification; and the presence of built-in air filters. Conversely, ductless ASHPs’ benefits in providing cooling without duct installations tended to appeal more to homeowners with ductless heating or cooling systems.
- Ducted ASHPs’ ability to supplement existing furnace equipment had the greatest appeal for high-income households and those with college degrees.

Where can people find the GHG reduction comparisons?

The information about decarbonization goals from our literature review came from several sources:

- Vermont Energy Investment Corporation. February 20, 2018. *Driving the Heat Pump Market Lessons Learned from the Northeast*. Prepared for Natural Resources Defense Council (NRDC). [VEIC website \(https://www.veic.org/documents/default-source/resources/reports/veic-heat-pumps-in-the-northeast.pdf\)](https://www.veic.org/documents/default-source/resources/reports/veic-heat-pumps-in-the-northeast.pdf).
- Minnesota Pollution Control Agency. January 2019. *Greenhouse Gas Emissions in Minnesota: 1990-2016*. [Minnesota Pollution Control Agency website \(https://www.pca.state.mn.us/air/state-and-regional-initiatives\)](https://www.pca.state.mn.us/air/state-and-regional-initiatives)
- Northeast Energy Efficiency Partnerships. January 2014. [Northeast/Mid-Atlantic Air-Source Heat Pump Market Strategies Report. NEEP website \(https://neep.org/sites/default/files/resources/NortheastMid-Atlantic%20Air-Source%20Heat%20Pump%20Market%20Strategies%20Report_0.pdf\)](https://neep.org/sites/default/files/resources/NortheastMid-Atlantic%20Air-Source%20Heat%20Pump%20Market%20Strategies%20Report_0.pdf).

Do you think there is any chance that the industry will start providing standardized equipment ratings below 17 F or even better at sub-zero temperatures?

We didn’t explore this in our research.

Further clarification/details for several questions answered during webinar

Are all ccASHP created equal? That is, do they all have the same outdoor temp rating?

No, some cold-climate ASHPs are rated to provide heat down to -13F and some to -22F. Capacity also does not decline at the same rate for all ccASHPs. Many ductless ccASHPs can maintain 100% of rated capacity down to 5F and then decline to 60-75% of capacity at -13F to -22F (no integrated backup). Ducted ccASHPs maintain about 70-75% of rated capacity at 5F, using backup electric resistance to meet load.

How you will solve the outside air requirements for ductless system, when there is no outdoor air connection to ductless system?

There are a variety of options available for providing ventilation with a ductless system, including exhaust-only systems, fans, and HRV/ERV. There are a variety of resources available discussing this particularly for green home new construction where a ductless system and separate ventilation system are commonly used.

Since the temperature in Minneapolis goes down to -25, does it mean we can't use these unit or we should have auxiliary heating unit?

Systems analyzed in the MNCEE study (reference below) were focused on displacing fossil fuel usage but not replacing the system entirely.

Minnesota Department of Commerce, Division of Energy Resources. November 1, 2017. [Cold Climate Air Source Heat Pump](https://www.mncee.org/MNCEE/media/PDFs/86417-Cold-Climate-Air-Source-Heat-Pump) (<https://www.mncee.org/MNCEE/media/PDFs/86417-Cold-Climate-Air-Source-Heat-Pump> (CARD-Final-Report-2018).pdf).

In the ducted residential survey, was the ccASHP listed cost additional/incremental to normal replacement or ASHPs?

We provided them with an incremental cost to convert from their current heating system to a ducted air source heat pump

Did you say earlier that a backup system is not needed when temps are below 5 degrees?

Not necessarily: there are many homes (particularly in newer construction) in the Northeast that are being constructed with heat pumps as the sole source of heating. However, in MN's climate, retaining a backup system would be advisable.