

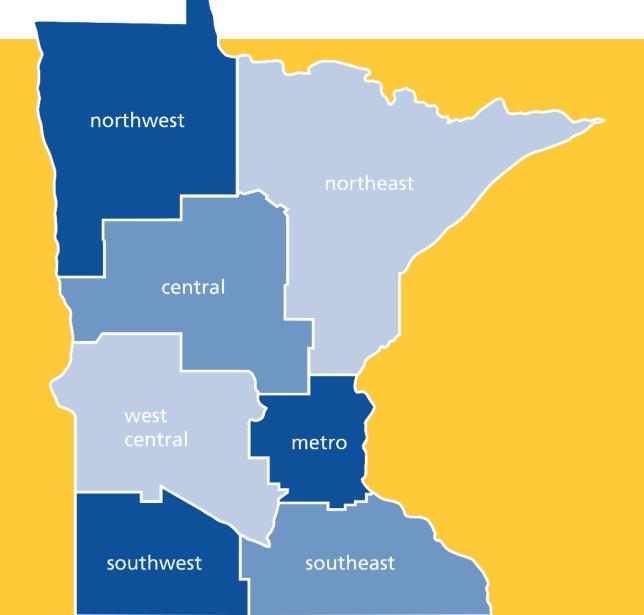
Are you pumped up? Achieving widespread quality installations of cold climate air source heat pumps

Getting customers warmed up to heating and cooling with ccASHPs

Alexis Troschinetz Energy Design Conference February 2020

Helping Minnesotans build clean energy

CERTS MISSION We connect individuals and their communities to the resources they need to identify and implement community-based clean energy projects



How does CERTs help?



Hands-on assistance

For cities, counties, utilities, farmers, businesses, and other organizations looking to make a change

1	
2	



Practical steps to clean energy

Resources for getting started, moving forward, and completing projects

Learning opportunities

We host events, create resources, and highlight clean energy stories and jobs

CERTs Partners

Regional Sustainable Development Partnerships UNIVERSITY OF MINNESOTA EXTENSION





www.CleanEnergyResourceTeams.org

History with Consumer Education: Right Light Guides & App

SOURCE TEN Ther	for (Ligh Genera at LED bulb for and our app t	every fixture	and room,	incondescent built	a of Light Bulbs. You can third different bulb types. Why 20 y bs have been phased out, and rou pick a bulb that is right for loars Bubb() Friend	ears'r Bioduse LEDS can O'Ls are becoming ies you, and so will the Rig Prox (+) a	lest that long. Many ropular. The pros and core hi Light App at the bottom nd Cons (-)
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Customized for 70+ utilities



mncerts.org/lighting







Heat and Cool with

Air Source Heat Pumps

Air source heat pumps (ASHPs) use electricity to heat and cool.

- ASHPs work like air conditioners to cool, and work in reverse to move warmth from outside air into your home to heat.
- ASHPs heat homes up to three times more efficiently than forced air and electric resistance heating systems.

Two Setups: Ductless or Central WHICH IS THE BEST FIT FOR YOUR MINNESOTA HOME?



OUTDOOR UNIT

above snow depth

DUCTLESS / MINI-SPLITS

Ductless ASHPs don't require ductwork in your home. There is one outdoor condenser connected to one or more indoor air distribution units. Indoor units are typically mounted on the wall, floor or ceiling. The individually-controlled indoor units allow for zoned heating and cooling and maximize energy savings and comfort.



INSTALLED COST: \$2,500 - \$8,500

GOOD FIT WHEN:

 Already heating with radiators, in-floor, or electric baseboard Getting rid of window A/C units or adding home cooling



OUTDOOR UNIT

above snow depth

CENTRAL / DUCTED

Central ASHPs use existing ductwork to distribute heated and cooled air throughout your home. The outdoor condenser is connected to the indoor furnace's fan. Unlike central A/C units, central ASHPs provide both heating and cooling in a single system.

INSTALLED COST: \$4,000 - \$8,000

GOOD FIT WHEN:

- Already heating with forced air (with ductwork in place)
- Replacing central A/C or adding it for the first time



Efficiently Heat and Cool with Air Source Heat Pumps

WHAT LEVEL OF PERFORMANCE DO YOU NEED IN MINNESOTA?

HEATING WITH ASHPs

If you want an ASHP to be your primary heating system, you'll need a cold climate ASHP (ccASHP) and a back-up heating system. While ccASHPs are more expensive upfront than ASHPs, there is a potential for heating fuel cost savings if you already heat with electricity or propane. ASHP's heating performance is noted with its HSPF (heating season

COOLING WITH ASHPs

ASHPs and ccASHPs offer the same cooling benefit as an air conditioner (A/C). ASHP's cooling performance is noted with its SEER (seasonal energy efficiency ratio), same as you would see for A/C units. Look for SEER 15 or higher for improved energy efficiency.

performance factor).	

DID YOU KNOW? It takes far less energy to move heat than it does to create heat, and you can even extract heat from really cold air!

STANDARD PERFORMANCE Air Source Heat Pump (ASHP)	PREMIUM PERFORMANCE Cold Climate Air Source Heat Pump (ccASHP)
Meets cooling and some heating needs	Meets cooling and most heating needs
Highly efficient down to 32 °F	Highly efficient down to 5 °F
Look for HSPF 8.5 or higher	Look for HSPF 9 for Central or HSPF 10 for Ductless

ESSENTIAL TIP: Before investing in a new heating system, get a home energy audit and improve your home's insulation and air sealing. Learn more at cleanenergy resource teams.org/assessment



Determine which setup is right for you Use the info on this sheet and a comparison table on our website to see whether a ductless or central ASHP will work best with your existing heating system.

2 Check with your electric utility

See what equipment they rebate and whether they require using one of their participating or gualified contractors.

3) Find a few certified contractors

If your utility has no requirements, find NATE-Certified technicians at cleanenergyresourceteams.org/hvac-help.

4 Ask contractors the right questions

Does the company have a state license for HVAC? Are they insured?

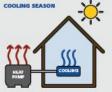
- How long have they been in business?
- Can they send a NATE-Certified or other technician with education credits or experience on ASHPs to my home?
- Tell the contractor your needs (cooling, heating, both). If heating through winter, ask for a "cold climate ASHP."

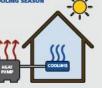
FIND COSTS, COMPARISONS & MORE

CleanEnergyResourceTeams.org/ASHP



HOW IT WORKS





Heat and Cool with



Air Source Heat Pumps

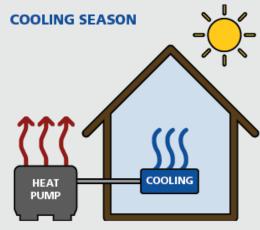
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ASHPs heat homes up to three times more efficiently than forced air and electric resistance heating systems.

Mind-blowing fact #1

HOW IT WORKS HEATING SEASON HEATING HEAT PUMP



Two Setups: Ductless or Central which is the best fit for your minnesota home?



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CoP	Still heats lower than 5°F, just not as efficiently.

DID YOU KNOW?

It takes far less energy to move heat than it does to create heat, and you can even extract heat from really cold air!

 $15^{\circ}F \rightarrow 5^{\circ}F$

Mind-blowing fact #2

Home Energy Audits

ESSENTIAL TIP: Before investing in a new heating system, get a home energy audit and improve your home's insulation and air sealing. Learn more at cleanenergyresourceteams.org/assessment

- Utility offerings
- Cost of audit
- Additional service by your company?

MN Power: Free

OTP: Limited, Free (Transformer) & Online (Analyzer)

Minnesota Energy Resources: Free

Mille Lace Energy Cooperative: Free



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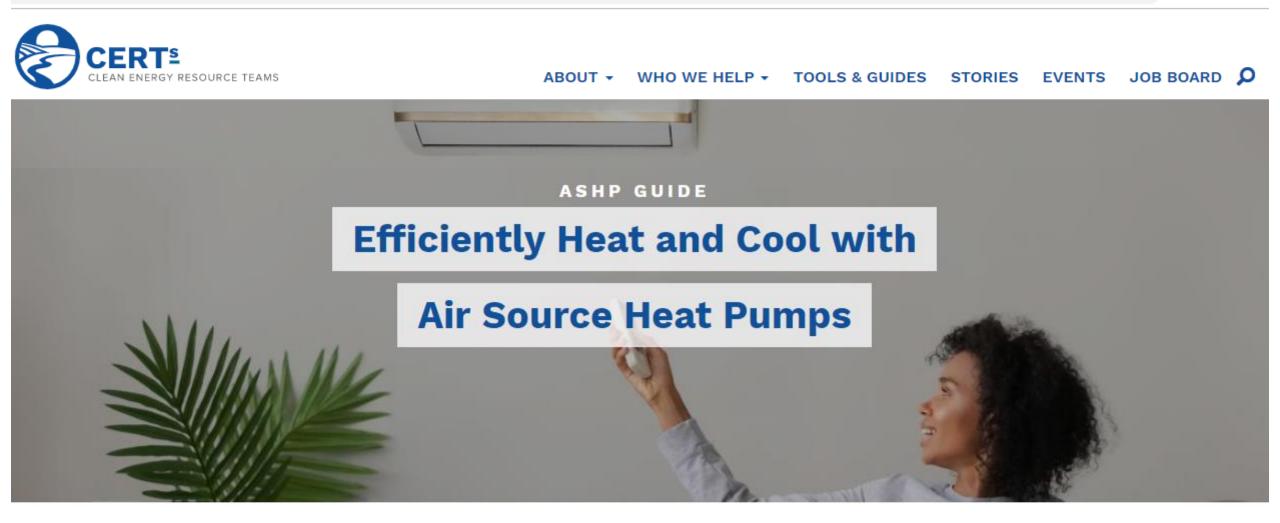
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FIND COSTS, COMPARISONS & MORE

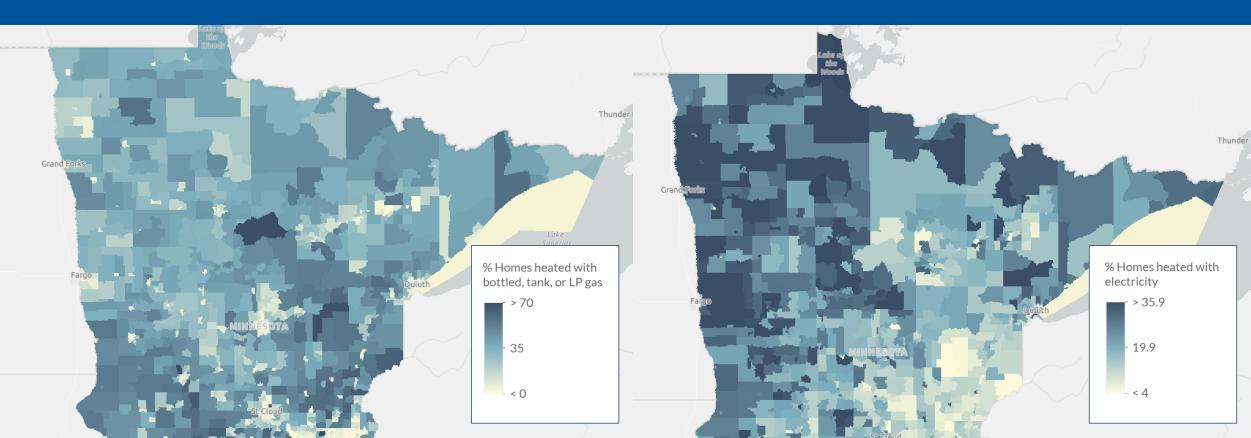
CleanEnergyResourceTeams.org/ASHP



Air source heat pumps (ASHPs) are electric appliances that are used for both heating and cooling. They work like an air conditioner to cool, and work in reverse to move warm air into your home to heat.

Northern Minnesota: Prime for ccASHPs

- Cost savings when already heating with electric or propane
- Much of northern MN heats with electric or propane



Natural Gas Conversions

- Natural gas for home heating is still most economical
- Make certain customer is aware of financial impact
- Provide operating cost estimates to demonstrate



Want to Follow-up?



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