

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

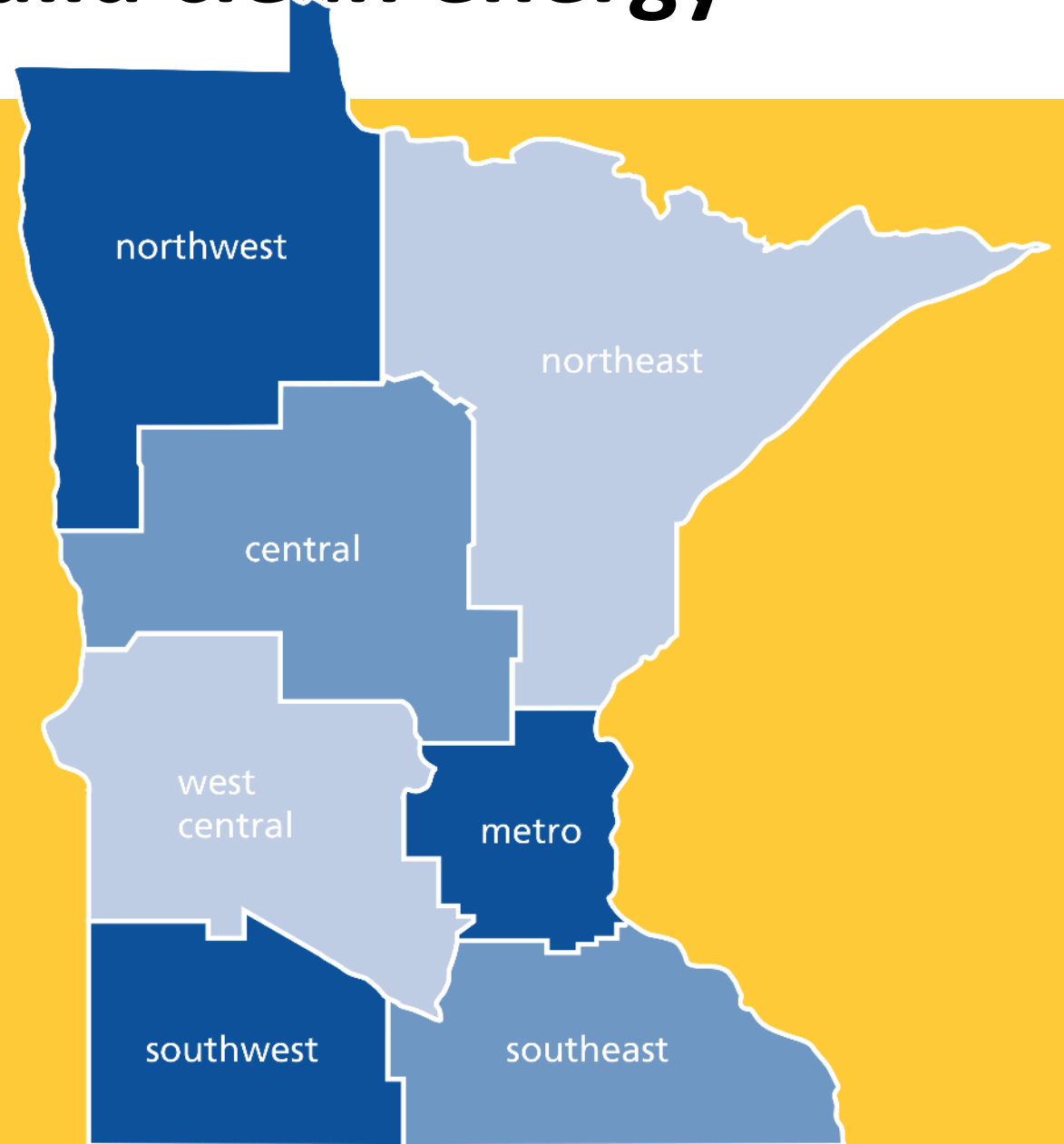
# **Getting customers warmed up to heating and cooling with ccASHPs**

**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



## **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**



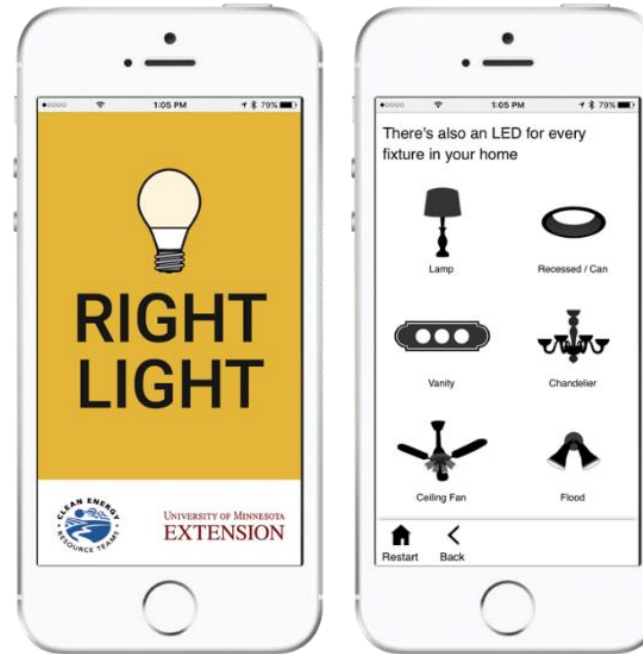
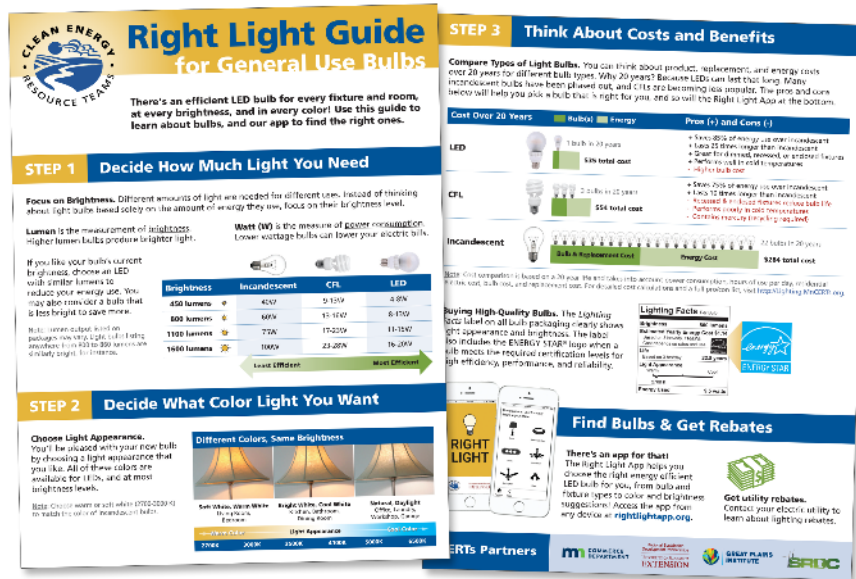
**GREAT PLAINS  
INSTITUTE**



**m1** **COMMERCE  
DEPARTMENT**

[www.CleanEnergyResourceTeams.org](http://www.CleanEnergyResourceTeams.org)

# History with Consumer Education: Right Light Guides & App



Customized for 70+ utilities



[mncerts.org/lighting](http://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



**INDOOR UNIT**  
mounted on wall

### 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.

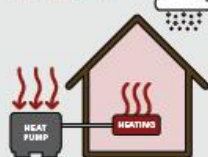
**INSTALLED COST:** \$2,500 - \$8,500

#### GOOD FIT WHEN:

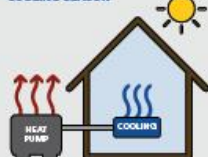
- Already heating with radiators, in-floor, or electric baseboard
- Getting rid of window A/C units or adding home cooling

### HOW IT WORKS

#### HEATING SEASON



#### COOLING SEASON



### 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



**OUTDOOR UNIT**  
above snow depth

## 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 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!

### 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.

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 [cleanenergyresourceteams.org/assessment](https://cleanenergyresourceteams.org/assessment)



### NEXT STEPS

- 1 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 qualified contractors.
- 3 Find a few certified contractors**  
If your utility has no requirements, find NATE-Certified technicians at [cleanenergyresourceteams.org/hvac-help](https://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](https://CleanEnergyResourceTeams.org/ASHP)

# Heat and Cool with



## Air Source Heat Pumps

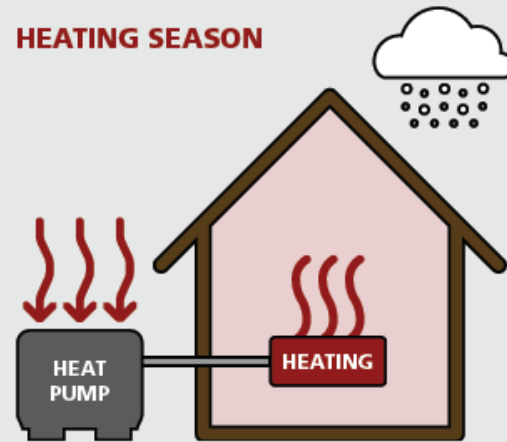
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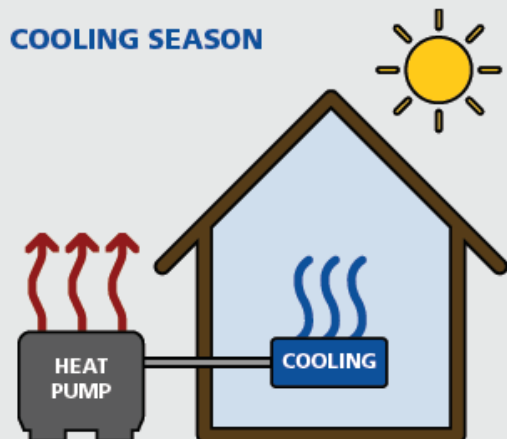
Mind-blowing fact #1

## HOW IT WORKS

### HEATING SEASON



### COOLING SEASON

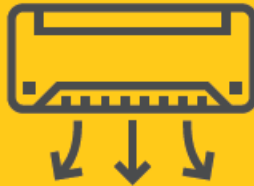


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Still heats lower than 5°F,  
just not as efficiently.

## **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°F → 5°F**

Mind-blowing fact #2

# Home Energy Audits

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

MN Power: Free

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

Minnesota Energy Resources: Free

Mille Lacs Energy Cooperative: Free



## NEXT STEPS

1

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2

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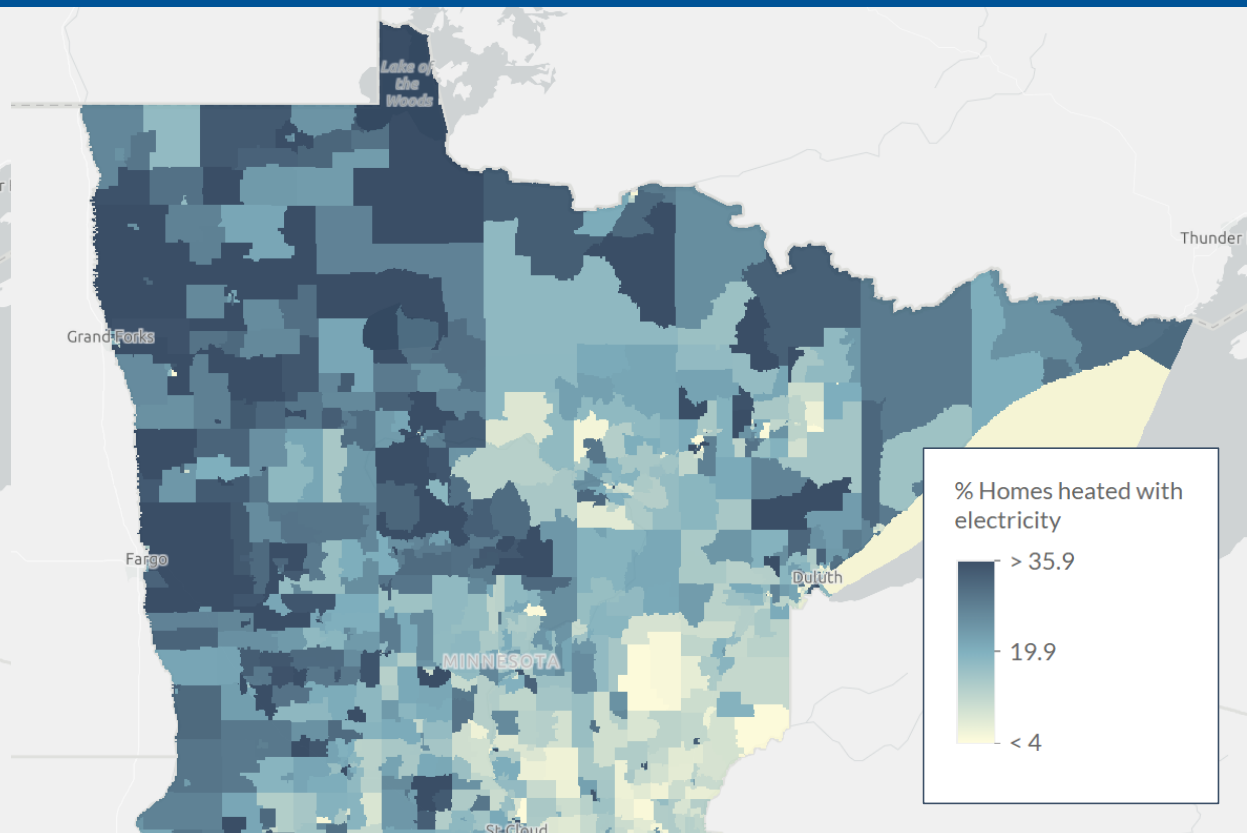
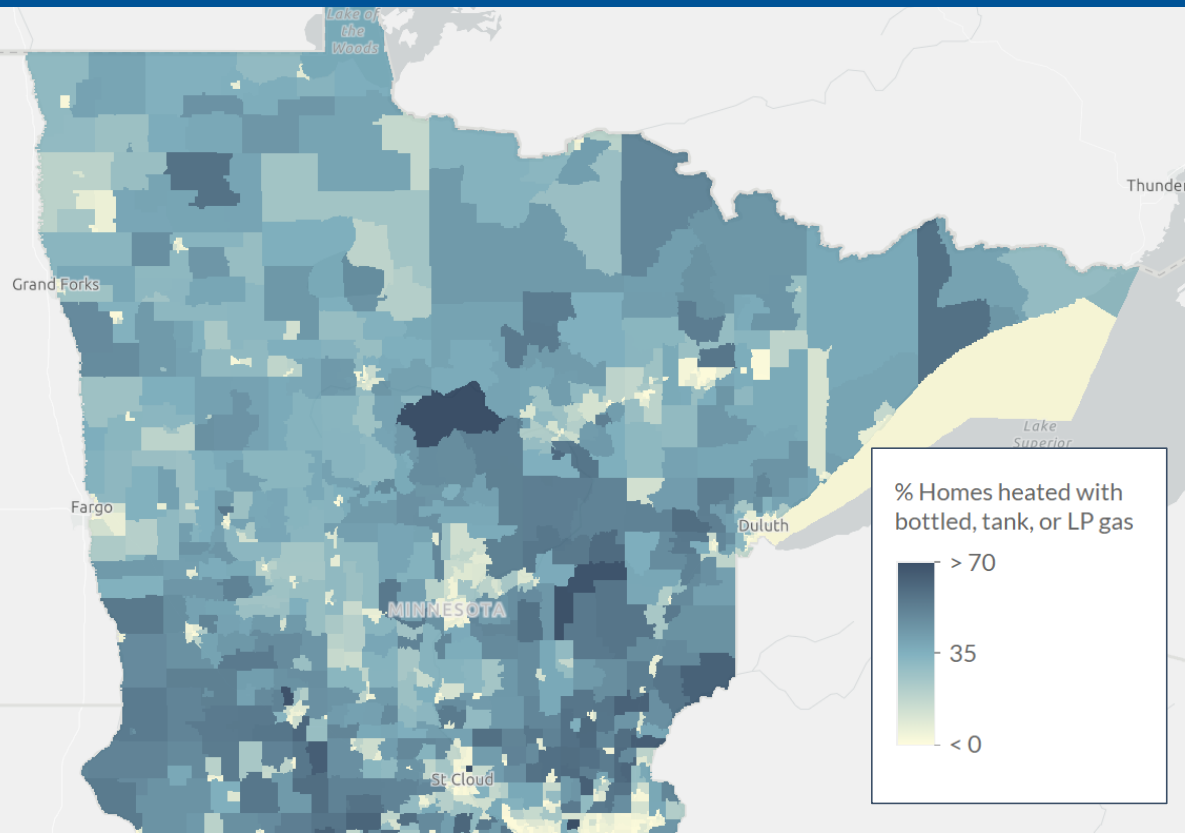
ASHP GUIDE

# Efficiently Heat and Cool with Air Source Heat Pumps

**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



Photo credit:  
Justin Baeder

# Want to Follow-up?



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