Heat Pump Water Heaters
The Savings Potential in Minnesota

METHOD
- Assessed HPWHs for MN installs by analyzing existing research and information about MN buildings and climate.
- Developed info and recommendations for utilities and homeowners.
- Created a calculator to analyze HPWH performance in MN.
- Created web applications to assist with water heater installation, performance and demand management.

Water Heater Efficiency

Heat Pump Mechanics

Heat Pump Water Heater Calculator
CEE developed a web based calculator to help homeowners and utilities assess the impact of HPWHs in Minnesota. This calculator takes inputs from a specific home or a service territory, and estimates the COP, electric savings, and demand profile impacts. Access the calculator at mncee.org/hpwh

RESULTS
- MN homeowners can expect HPWHs to operate with COPs between 1.5 and 1.9, a significant increase over electric resistance water heaters (0.9 COP).
- Space heating impacts depend on specific installation.
- Annual DHW energy consumption reduced by 20-45%.
- Family using 60 gallons of hot water per day can save $110-$250 a year.

Comparing the Demand Profiles of 10 Homes

Heat Pump Water Heater Savings

CONCLUSION
- HPWHs are gaining significant market share nationally.
- HPWHs give MN homeowners an efficient option for electric water heating.
- Installation of HPWHs will reduce peak demand for electric utilities in MN.

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