



WINNING

Heat Pump

Market Trends and Funding Opportunities



Kevin DeMaster
Mitsubishi Electric Trane HVAC
Sr. Mgr. Utilities & Electrification

November 2, 2023

WINNING Topics

- **WINNING with a Customer Focused Perspective**
- **WINNING with Heat Pumps**
- **WINNING with Financial Incentives**
- **WINNING with Dual Fuel Heat Pumps**

**WINNING WITH A
CLEAR PERSPECTIVE
TO SEE OPPORTUNITY**



MITSUBISHI ELECTRIC TRANE HVAC US



Perspective & Opportunity –

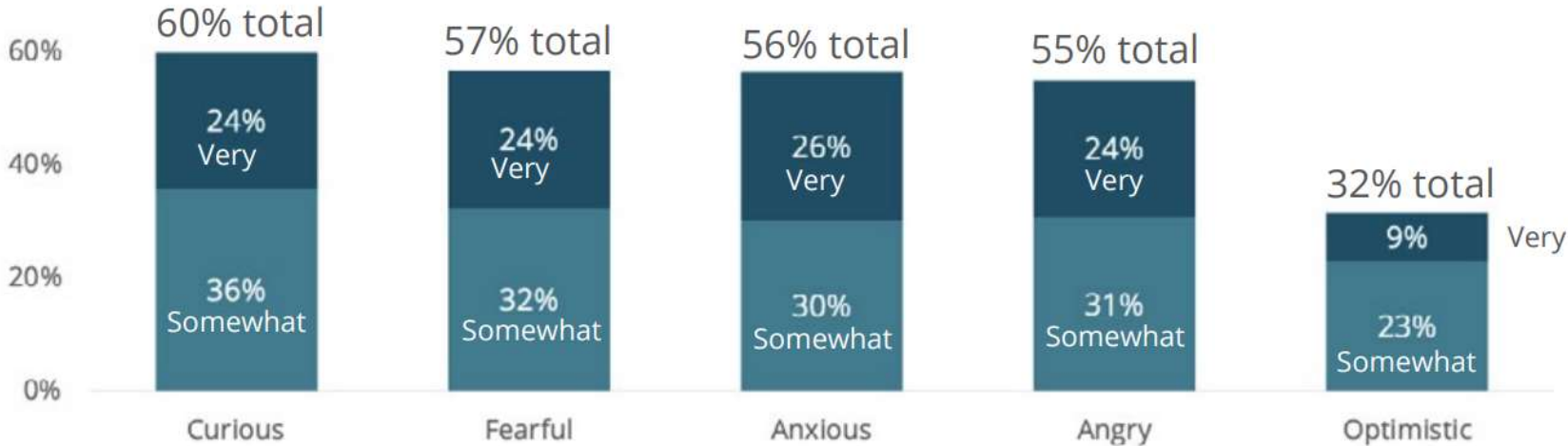
- **WHAT DO YOU SEE?**
- **Muhammad Ali:** *“Looking at life from a different perspective makes you realize that it’s not the deer that is crossing the road, rather it’s the road that is crossing the forest.”*
- **FRESH PERSPECTIVES LEAD TO OPPORTUNITY**



Know the Customer...Emotions Drive Purchasing Decisions



Americans report feeling curious, fearful, anxious, and angry when they think about climate change. Survey question: When you think about climate change, how do you feel? Results for “very” and “somewhat” 1,066 national respondents. +/- 3% margin of error.



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<https://ecoamerica.org/wp-content/uploads/2022/05/acps-2022-vol-ii-part-ii-final.pdf>



Know the Customer...Emotions Drive Purchasing Decisions



More young Americans identify with feelings around climate change than older counterparts Survey question: When you think about climate change, how do you feel? Results for “very” and “somewhat” 1,066 national respondents. +/- 3% margin of error.

	18-29	30-44	45-60	> 60
Curious	66%	55%	59%	61%
Angry	66%	53%	53%	50%
Fearful	65%	58%	53%	54%
Anxious	64%	57%	52%	54%
Optimistic	30%	34%	33%	29%

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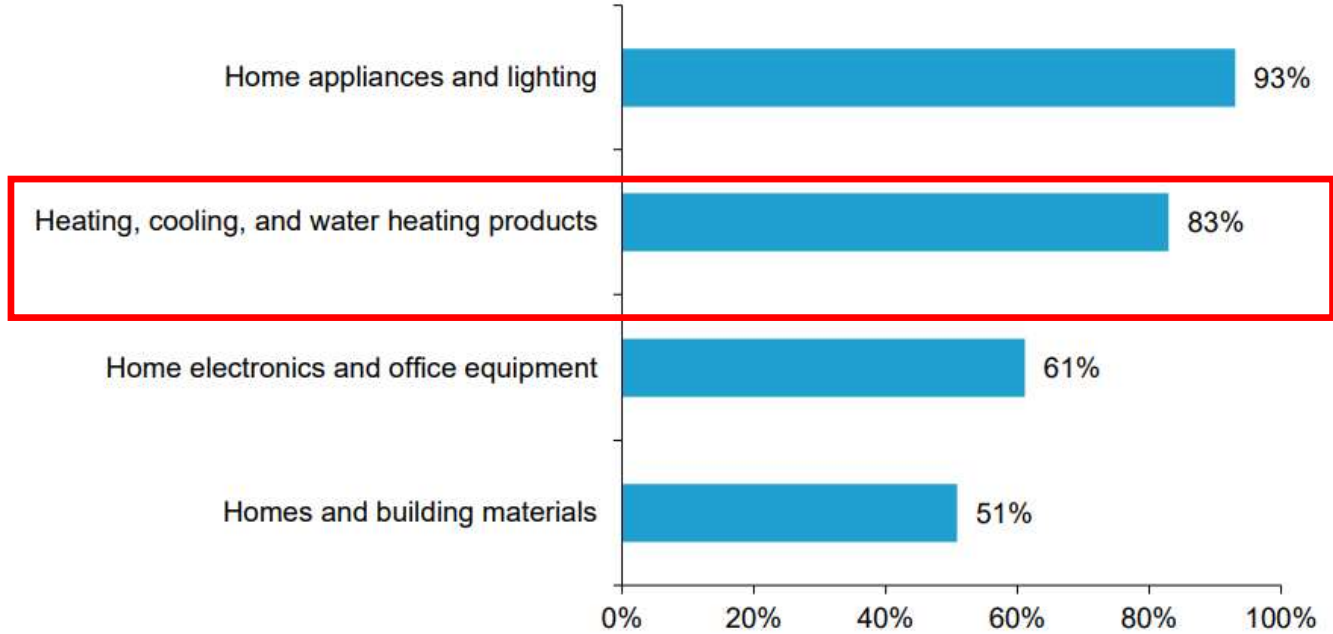
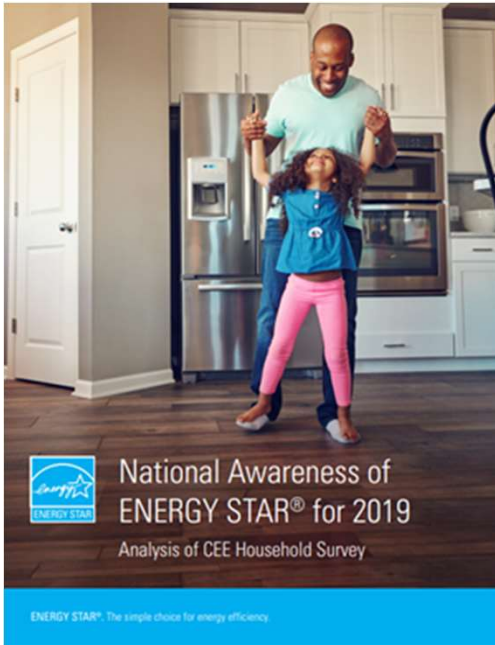
<https://ecoamerica.org/wp-content/uploads/2022/05/acps-2022-vol-ii-part-ii-final.pdf>



Energy Star Label – Strong Association to HVAC



Product Association with the ENERGY STAR Label by 2019 Product Category
[Base = Recognize label (aided)³]



https://www.energystar.gov/sites/default/files/asset/document/National_Awareness_of_ENERGY_STAR_2019_DNVGL_050120_508.pdf

Consumer Interest - Energy Star Sunsetting Label to AC's & Furnaces



LEARN MORE AT
energystar.gov

ENERGY STAR®, a U.S. Environmental Protection Agency program, helps us all save money and protect our environment through energy efficient products and practices. For more information, visit www.energystar.gov.

Dear ENERGY STAR® Residential Heating and Cooling Equipment Partner or Other Interested Stakeholder:

Consistent with the Environmental Protection Agency's (EPA) focus on the potential for electric heat pumps to deliver energy-efficiency gains, pollution reduction and cost-savings to consumers, the ENERGY STAR program is proposing to sunset the certification pathway to the ENERGY STAR label for residential furnaces and central air conditioners (CACs). This will allow EPA to evolve the ENERGY STAR portfolio of product specifications toward identifying the most efficient electric equipment now available to consumers.

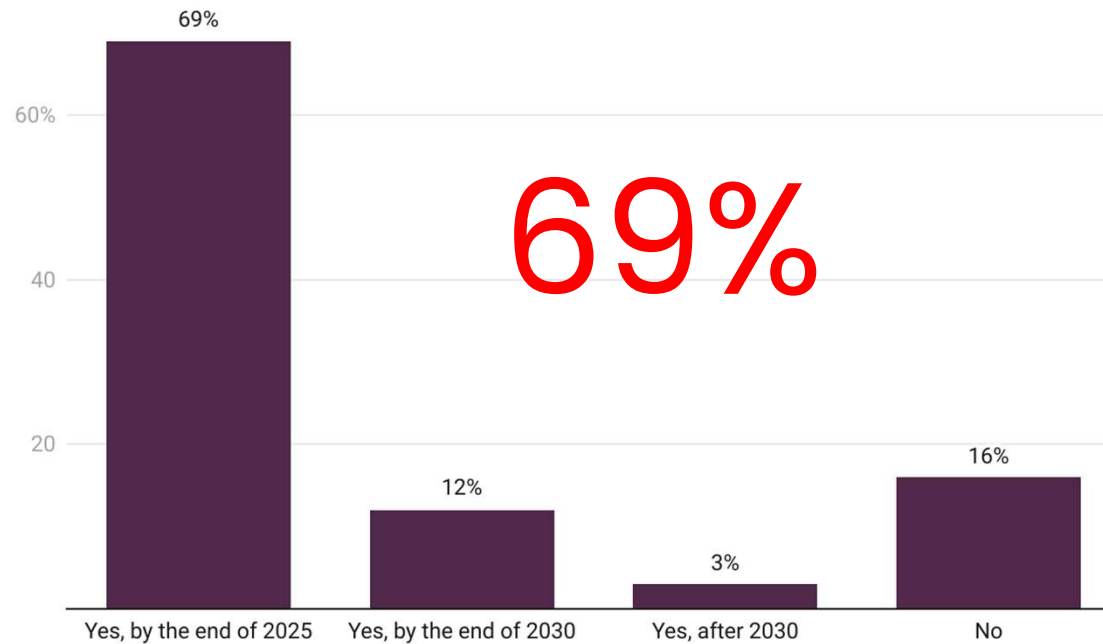
This proposal involves sunsetting the ENERGY STAR Version 4.1 Specification for Furnaces and removing CACs from the ENERGY STAR V6.1 Specification for CAC and Heat Pump Equipment. A similar sunset proposal will be considered for gas and oil appliances in the context of forthcoming revisions of the ENERGY STAR V3.0 Specification for Boilers, the Version 1.0 Specification for Dryers, and the ENERGY STAR V1.0 for Commercial Packaged Boilers.

With the passage of the Inflation Reduction Act, EPA sees an unprecedented opportunity for the ENERGY STAR program to support the national transition to the most energy efficient equipment available. The Agency recognizes an important responsibility to guide consumers to the choices that support the efficient electrification of residential space conditioning. As such, EPA is proposing to phase

What about Cheap Natural Gas Trends?

Oil & gas execs believe U.S. natural gas will cease to be cheap in coming years

Survey question posed to U.S. oil and gas executives in Sept 2022: "Do you expect the age of inexpensive U.S. natural gas to come to an end as liquefied natural gas exports to Europe expand?"



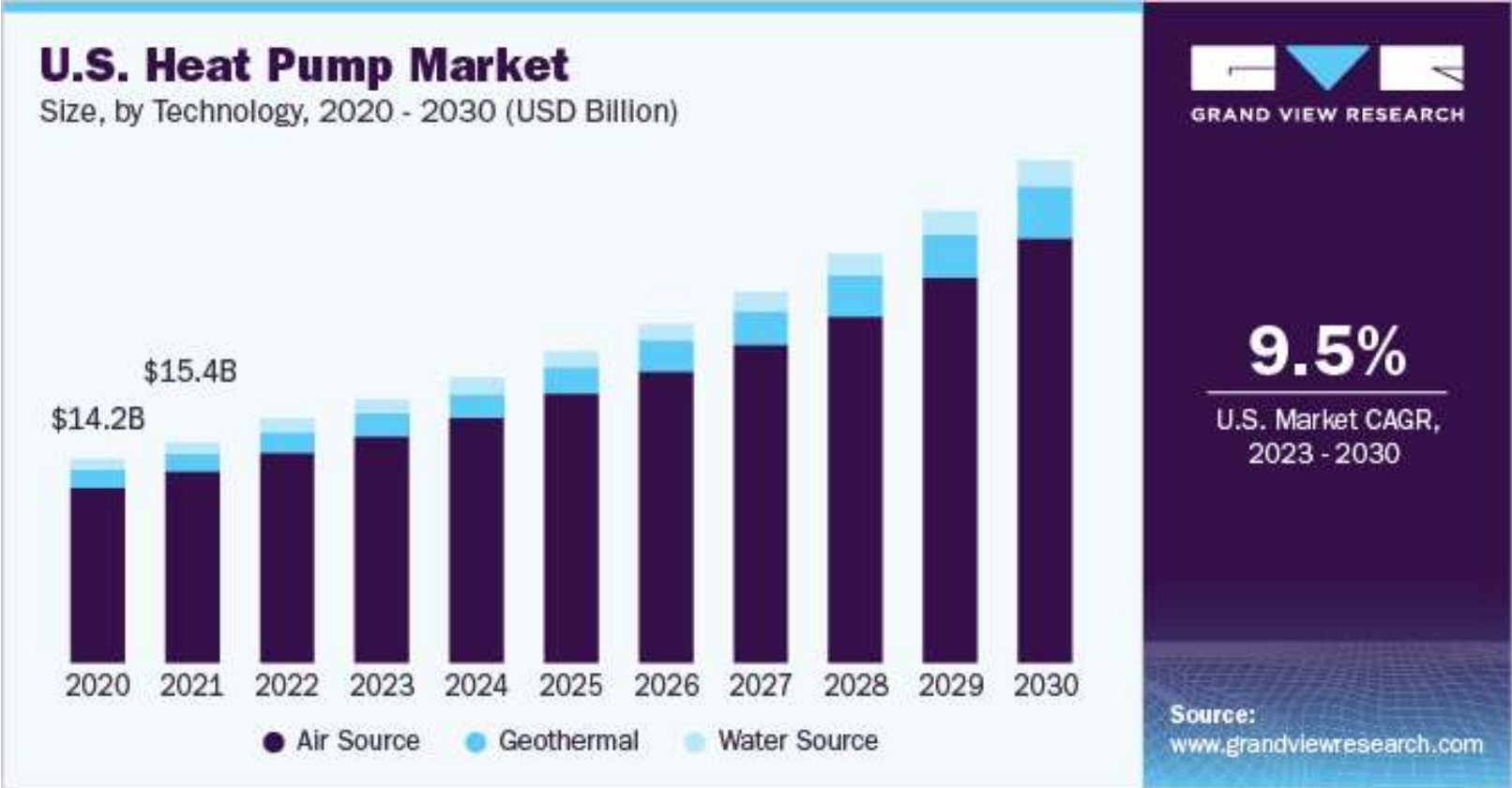
**WINNING WITH A
FOCUSED ATTENTION
TO HEAT PUMP
EXCELLENCE**



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We are Talking HVAC and Market Trajectory....not Political

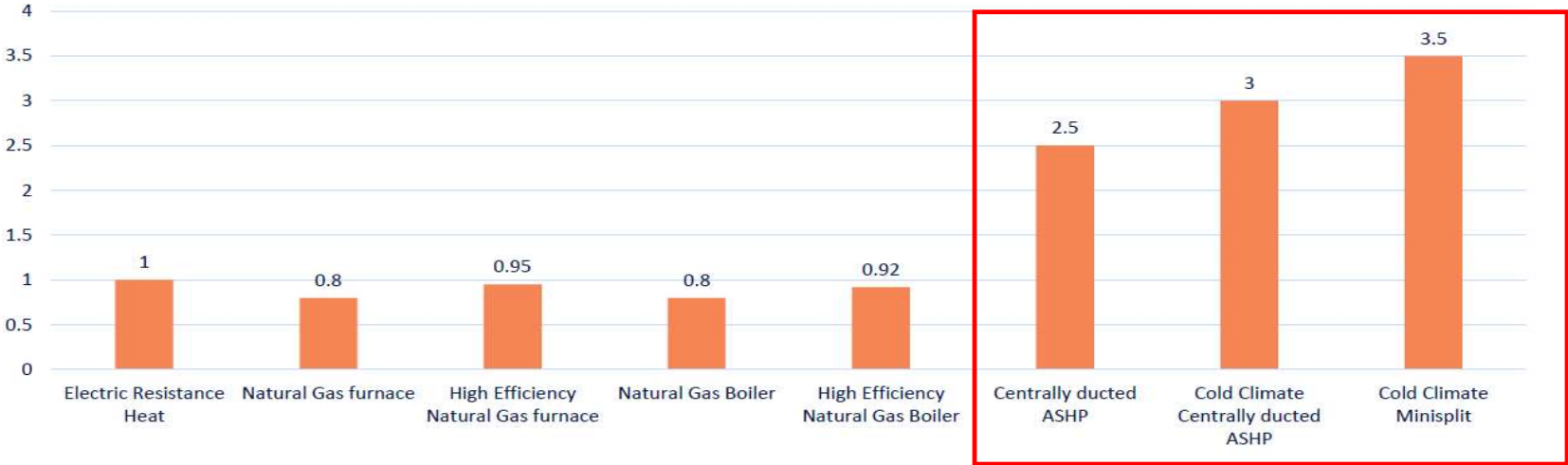


Heat Pumps Because Fuel Efficiency and Carbon Reduction

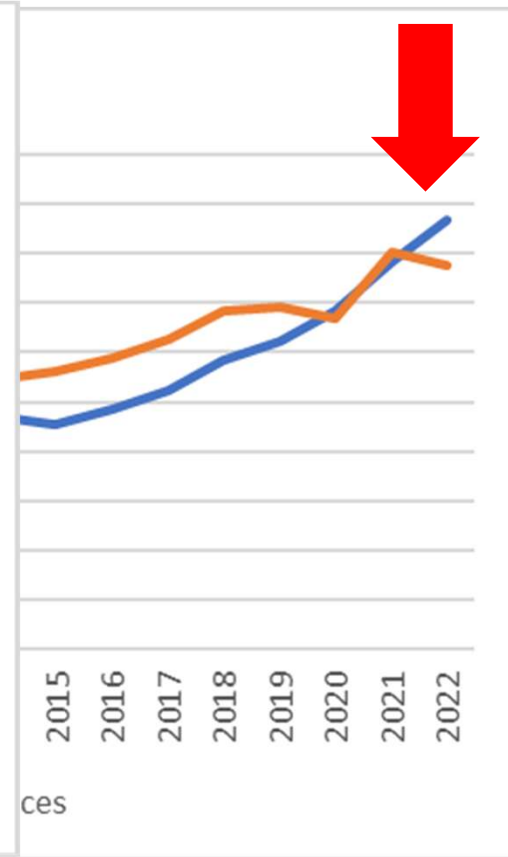
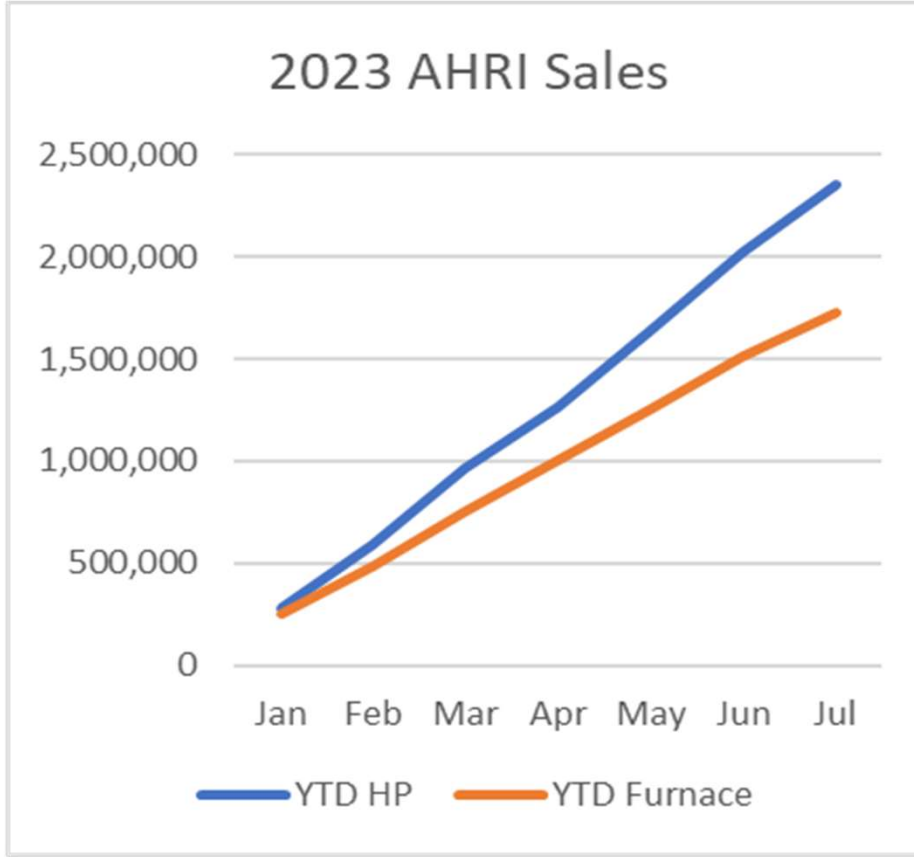
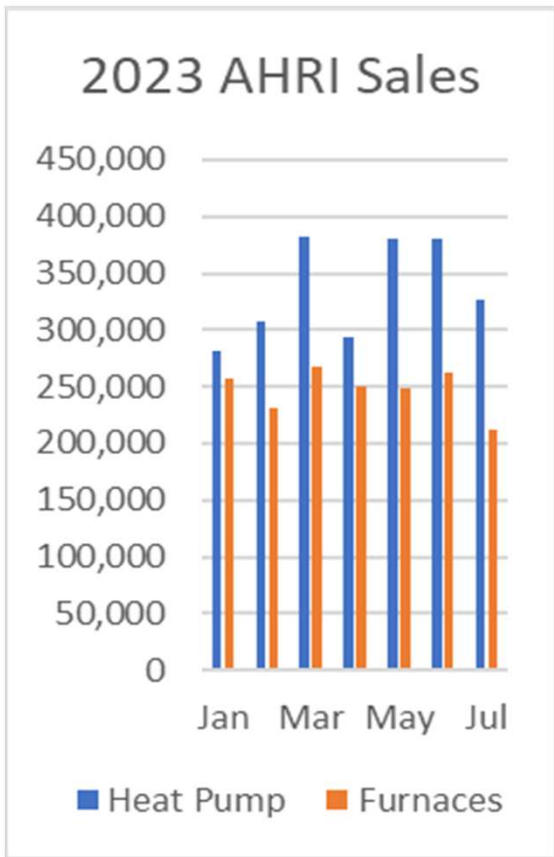
Why ASHPs?

Immense fuel efficiency and carbon reduction

Approximate Coefficient of Performance (COP)



AHRI Shipments Tell the Story



Heat-pump sales in U.S. need to soar

Growth in electric heat-pump sales would have to follow an S-curve to meet climate goals

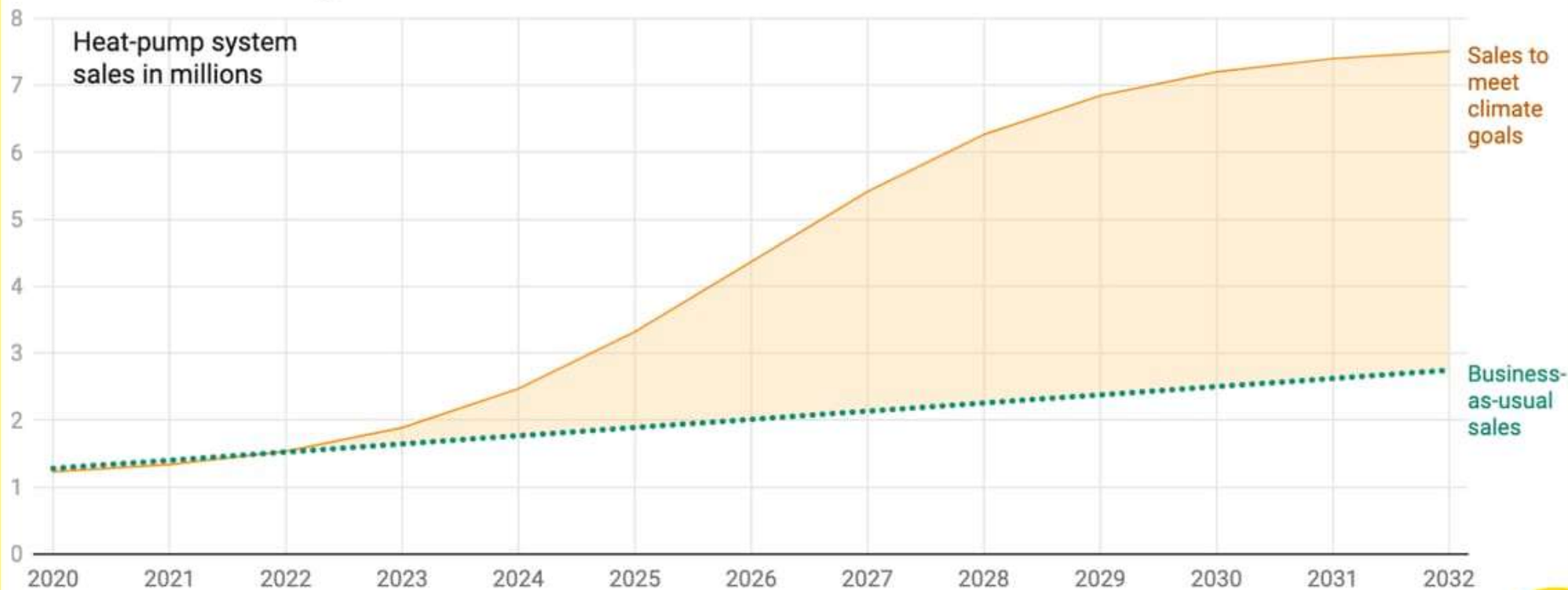


Chart: Canary Media Source: Rewiring America, Pace of Progress 2023

WINNING WITH THE INFLATION REDUCTION ACT & UTILITY INCENTIVES



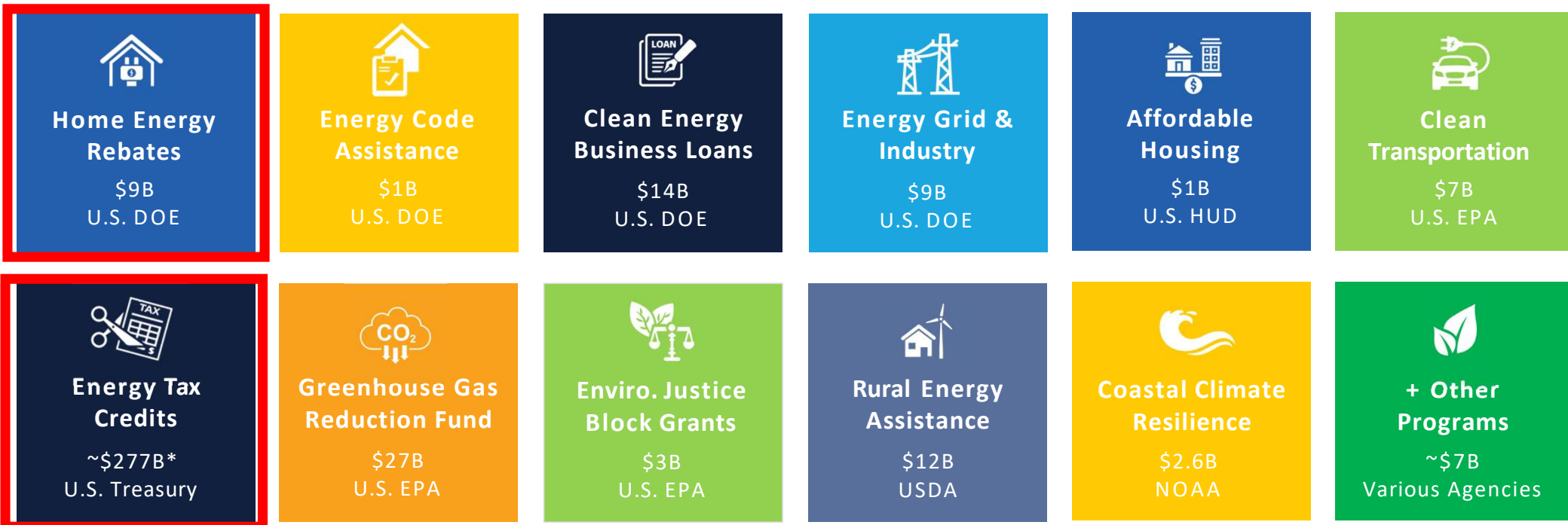
MITSUBISHI ELECTRIC TRANE HVAC US



Mobilizing Clean Energy Investment Through IRA



\$369 BILLION IRA PACKAGE



Home Energy Rebate Provisions

**These Funds Are Not
Yet Available.**



Home Energy Rebates
\$8.8 Billion

September 30, 2031

State Energy Offices & Indian Tribes

Home Efficiency Rebates
(HOMES)

\$4.3 Billion

Whole-home retrofits

Home Electrification and Appliance Rebates
(HEERA) 

\$4.5 Billion

Efficient Electric Installations
Low-moderate income qualified

State & Territory Home Energy Rebate Allocations

Alabama	\$146 M
Alaska	\$75 M
Arizona	\$153 M
Arkansas	\$105 M
American Samoa	\$50 M
California	\$582 M
Colorado	\$140 M
Connecticut	\$99 M
District of Columbia	\$59 M
Delaware	\$66 M
Florida	\$346 M
Georgia	\$219 M
Guam	\$51 M
Hawaii	\$68 M
Idaho	\$81 M
Illinois	\$264 M
Indiana	\$182 M

Iowa	\$121 M
Kansas	\$106 M
Kentucky	\$134 M
Louisiana	\$213 M
Maine	\$72 M
Maryland	\$137 M
Massachusetts	\$146 M
Michigan	\$211 M
Minnesota	\$148 M
Mississippi	\$105 M
Missouri	\$151 M
Montana	\$71 M
Northern Marianas	\$50 M
Nebraska	\$91 M
Nevada	\$96 M
New Hampshire	\$70 M
New Jersey	\$183 M

New Mexico	\$88 M
New York	\$318 M
North Carolina	\$209 M
North Dakota	\$74 M
Ohio	\$249 M
Oklahoma	\$129 M
Oregon	\$114 M
Pennsylvania	\$259 M
Puerto Rico	\$85 M
Rhode Island	\$64 M
South Carolina	\$137 M
South Dakota	\$69 M
Tennessee	\$167 M
Texas	\$690 M
Utah	\$101 M
Vermont	\$59 M
U.S. Virgin Islands	\$51 M

Virginia	\$189 M
Washington	\$166 M
West Virginia	\$88 M
Wisconsin	\$149 M
Wyoming	\$69 M

Allocation of \$225M designated for Indian Tribes has not yet been determined.

Up to 20% of these funds may be used for program administration.

NOTE: These figures are rounded. Exact amounts can be found here: <https://www.energy.gov/articles/biden-harris-administration-announces-state-and-tribe-allocations-home-energy-rebate>

Set Your Vision on the Opportunity Ahead – HEAR Proposed Framework!!



HEEHRA Rebate Levels For Qualified Electrification Projects	
Income Eligibility and % Costs Covered	
Low-income: <80% Area Median Income (AMI) % costs covered (including installation)	100%
Moderate-income: 80-150% AMI % costs covered (including installation)	50%
Overall Incentives	
Max consumer rebate	\$14,000
Max contractor rebate	\$500
Rebates for Qualified Electrification Projects	
Heat pump HVAC	\$8,000
Heat pump water heater	\$1,750
Electric stove/cooktop	\$840
Heat pump clothes dryer	\$840
Breaker box	\$4,000
Electric wiring	\$2,500
Weatherization insulation, air sealing, ventilation	\$1,600



Most States Likely to Launch
2nd or 3rd Qtr 2024

TODAY You Have the 25(C) Tax Credit!

- Started Jan 1 2023
- 10 Years to 2032
- 30% Tax Credit – can take ANNUALLY
- Up to \$2,000 for Heat Pumps
 - Other Updates – total \$1,200
 - (Note - \$600 Electric Upgrade with Heat Pump)

WIN: Discuss tax credits in every sales conversation

Internal Revenue Service
Media Relations Office
Washington, D.C.
Media Contact: 202.317.4000
Public Contact: 800.859.1040
www.irs.gov/newsroom

Fact Sheet

Inflation Reduction Act 25C Tax Credit Qualified Product List
Current List as of 10.18.2023

Frequently asked questions about residential clean energy property credits

FS-2022-40, December 2022

This Fact Sheet issues frequently asked questions about residential clean energy property credits.

These FAQs are being issued as frequently as possible. Accordingly, these may be updated or modified. In the future, if a new IRS Bulletin, they will not be a statement of the law as of a certain date. Nonetheless, a taxpayer provides a reasonable reliance on the information in this Fact Sheet. The IRS will maintain a current version if they later issue a new version.

North Qualified Products

Brand	AHRI Number	Outdoor Unit Model Number	Indoor Unit Model Number
Mitsubishi Electric	210815439	MUZ-KJ12NAH2***	MFZ-KJ12NA***
Mitsubishi Electric	210815440	MUZ-KJ12NAH2***	MFZ-KJ12NA***
Mitsubishi Electric	210815447	MUZ-KJ12NAH2***	MFZ-KJ12NA***
Mitsubishi Electric	210815448	MUZ-KJ12NAH2***	MFZ-KJ12NA***
Mitsubishi Electric	201754427	MUZ-FH09NAH	MSZ-FH09NA**
Mitsubishi Electric	201754297	MUZ-FH09NAH	MSZ-FH09NA**
Mitsubishi Electric	201754299	MUZ-FH09NAH	MSZ-FH09NA**
Mitsubishi Electric	201754301	MUZ-FH12NAH	MSZ-FH12NA**
Mitsubishi Electric	201754303	MUZ-FH12NAH	MSZ-FH12NA**
Mitsubishi Electric	209832199	MUZ-FH18NAH2	MSZ-FH18NA**
Mitsubishi Electric	209832200	MUZ-FS09NAH***	MSZ-FS09NA***
Mitsubishi Electric	209832201	MUZ-FS09NAH***	MSZ-FS09NA***
Mitsubishi Electric	209832202	MUZ-FS09NAH***	MSZ-FS09NA***
Mitsubishi Electric	209832203	MUZ-FS09NAH***	MSZ-FS09NA***
Mitsubishi Electric	209832204	MUZ-FS12NAH***	MSZ-FS12NA***
Mitsubishi Electric	209832206	MUZ-FS12NAH***	MSZ-FS12NA***
Mitsubishi Electric	209832208	MUZ-FS18NAH***	MSZ-FS18NA***
Mitsubishi Electric	209832207	MUZ-FS18NAH***	MSZ-FS18NA***
Mitsubishi Electric	209832208	MUZ-FS18NAH***	MSZ-FS18NA***
Mitsubishi Electric	202860594	MUZ-GL09NA***	MSZ-GL09NA***
Mitsubishi Electric	202860595	MUZ-GL12NA***	MSZ-GL12NA***
Mitsubishi Electric	202860596	MUZ-GL12NA***	MSZ-GL12NA***
Mitsubishi Electric	202860596	MUZ-GL18NA***	MSZ-GL18NA***

More information:
Energy Efficient
Frequently Asked
Background
Public Law 117
amended the
residential energy
credits, info
General
Through the
IRA, general
by the
during
year
exp
202
Ge
T
L

This document is produced by METU and is available for all customers. Please note that the CEE list for qualifying products is the document that the DOE uses to determine qualifying products.



Additional MN state funding available

- **Customers must:**
 - Apply for and/or receive the related federal rebate,
 - Have an energy audit within the last 18 months,
 - Perform necessary insulation upgrades, and
 - Purchase and install heat pump of contractor-recommended capacity.
- **Maximum grant of \$4,000**

Funds are expected to be available in 2024 alongside federal heat pump rebates.

Subscribe for updates:

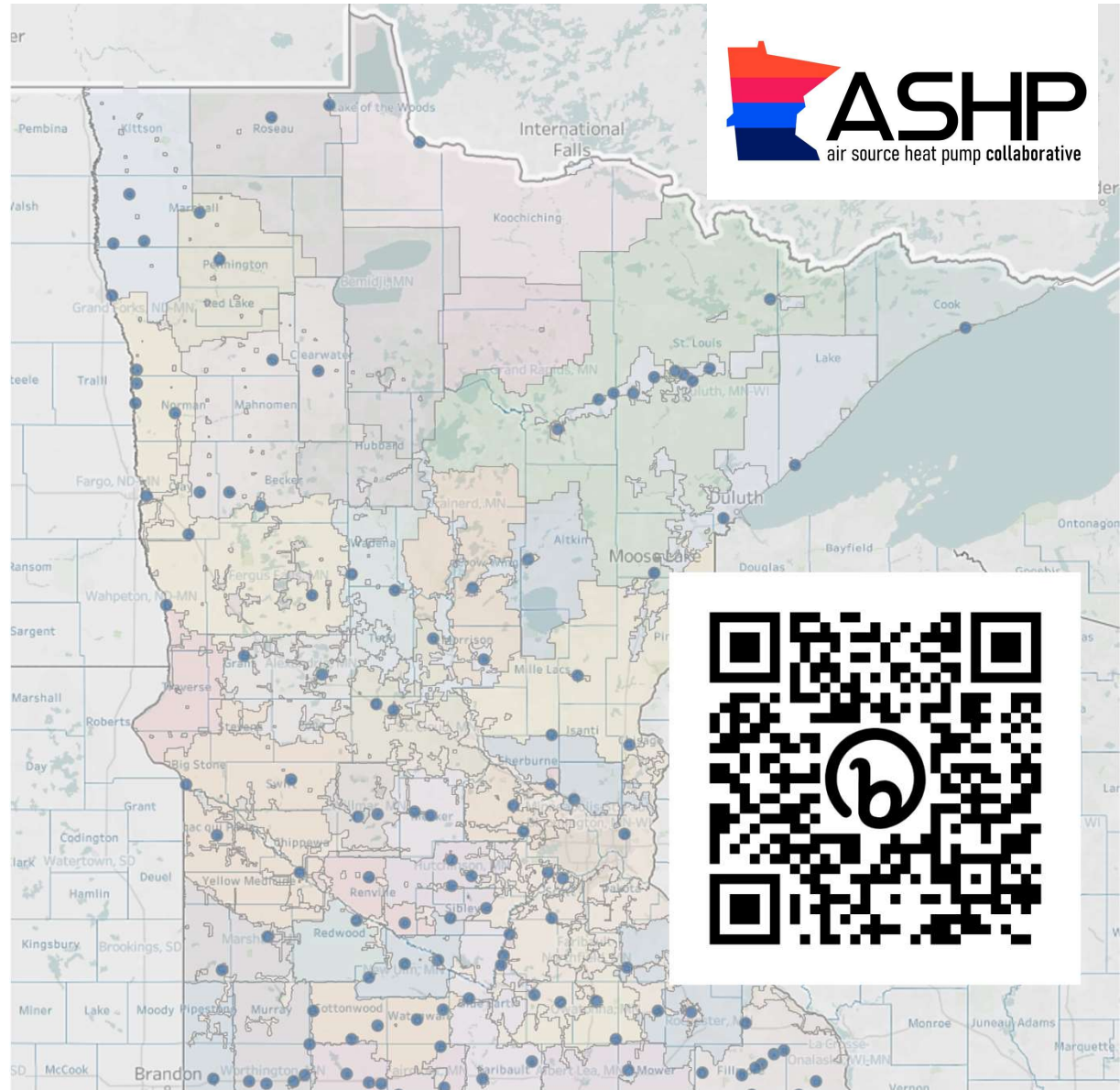
<https://mn.gov/commerce/energy/consumer/energy-programs/heat-pump.jsp>



MN Incentives and Financing Resources

- Updates and information on federal and state incentives
- Utility rebates
 - Interactive map
 - Downloadable database
- Loan options beyond in-house financing products

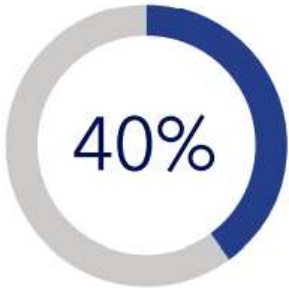
<https://www.mnashp.org/incentives-financing>



Contractors Find Rebates to be Key Driver to Revenue



Trade allies that attribute more than 50% of the revenue to utility energy programs



Small trade allies



Medium trade allies



Large trade allies

SOURCE 2023 TRADE ALLY SURVEY REPORT DNV

Win by Being Found on Utility Website

Find a contractor →



Heating & Cooling (You must work with a participating contractor)

Use Minnesota Power's Contractor Lookup tool to find a qualified service professional in your area!

Contractor Lookup **Find a Contractor**

Interested in becoming a contractor? If you are installing a new system, please select the product and service type you are looking for.

Product

- All
- Air Source Heat Pump Replacement
- Furnace ECM Replacement
- Ground Source Heat Pump
- Heating

Product

- Air Source Heat Pump - Ducted
- Air Source Heat Pump - Ductless
- Air Source Heat Pump - Proper Installation (Non-ENERGY STAR)
- Cold Climate Air Source Heat Pump - Ducted
- Cold Climate Air Source Heat Pump - Ductless

1 - 50 of 180 results Display 50 results per page

Get the Badge →

Advantage Air Plumbing Heating & Cooling Inc
Duluth, MN
(715) 817-4404
HVAC Contractor
About 0.9 miles away

[Details](#)
[Request Quote](#)

Let's Begin Market Disruption with Incentives!

<https://www.mitsubishicomfort.com/rebates>

The Inflation Reduction Act


Unprecedented opportunities for the HVAC Industry with variable-capacity heat pumps



MITSUBISHI ELECTRIC TRANE HVAC US

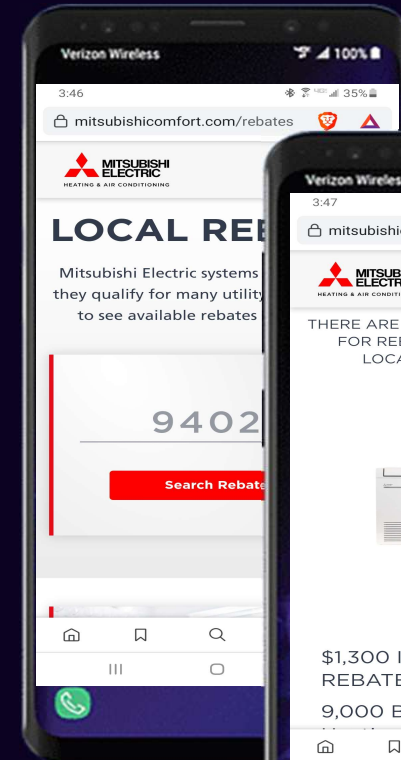
Inflation Reduction Act 25C Tax Credit Qualified Product List

Current List as of 10.18.2023



North Qualified Products

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Mitsubishi Electric	210819447	MUFZ-KJ15NAH2***	MFZ-KJ15NA***
Mitsubishi Electric	210819448	MUFZ-KJ18NAH2***	MFZ-KJ18NA***
Mitsubishi Electric	201754427	MUZ-FH09NAH	MSZ-FH09NA**
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Mitsubishi Electric	202895994	MUZ-GL09NA**	MSZ-GL09NA***
Mitsubishi Electric	202895995	MUZ-GL12NA**	MSZ-GL12NA***
Mitsubishi Electric	202895996	MUZ-GL15NA**	MSZ-GL15NA***



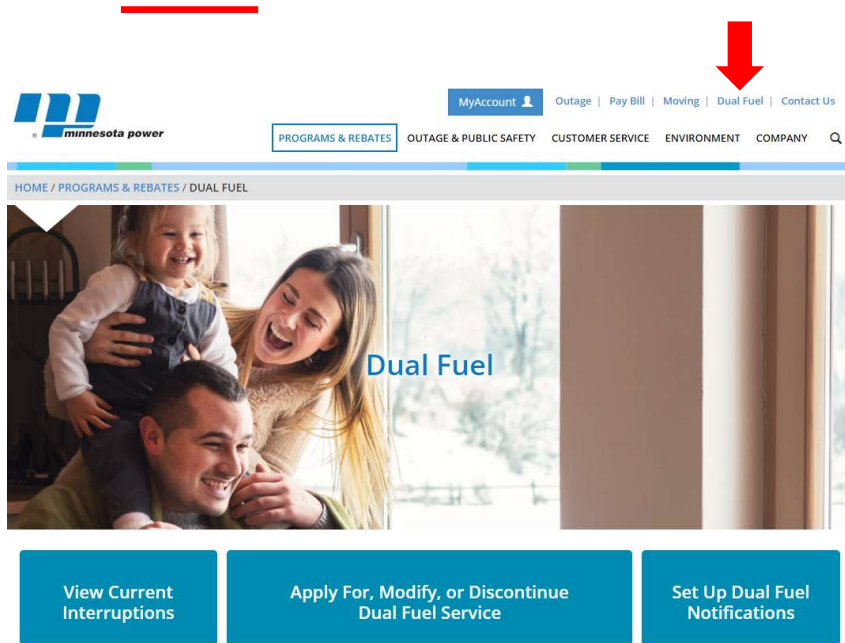
WINNING WITH Dual Fuel Rates



MITSUBISHI ELECTRIC TRANE HVAC US



Winning with Heat Pump Rates



COMPARE	DUAL FUEL STANDARD	DUAL FUEL PLUS
RATE	\$0.06916/kWh Service Charge: \$6.00/\$16.00	\$0.04703/kWh Service Charge: \$6.00/\$16.00
SAVINGS Compared to Standard Residential Rate \$0.09403/kWh	-\$0.02487/kWh	-\$0.047/kWh
INTERRUPTIONS	<ul style="list-style-type: none"> • Can be interrupted two times per day up to four hours at a time. • Minimum two hours between any interruptions. • Maximum annual hours: 300 	<ul style="list-style-type: none"> • Can be interrupted up to 20 hours per day. • Minimum two hours between any interruptions. • Maximum annual hours: 1,000
ONLY FOR ELECTRIC HEAT?	No	Yes
OVERVIEW	Flexible discounted rate that can be utilized for more than just electric heat.	Lowest cost way to electrically heat your home with appropriate heating and cooling system
BEST FIT FOR	Heating systems without automatic non-electric backup <ul style="list-style-type: none"> • Storage/Slab • Wood Heat • Fireplaces • Electric Vehicles • Water Heaters • Garages 	Heating systems with automatic non-electric backup

<https://www.mnpower.com/ProgramsRebates/DualFuel>



Summary – Cost of Minnesota Heating BTU's

Illustration Purposes



Propane –
\$2.10/gal

Natural Gas –
\$1.27 / therm

Electric Resistance Heat
\$0.094 / kWh

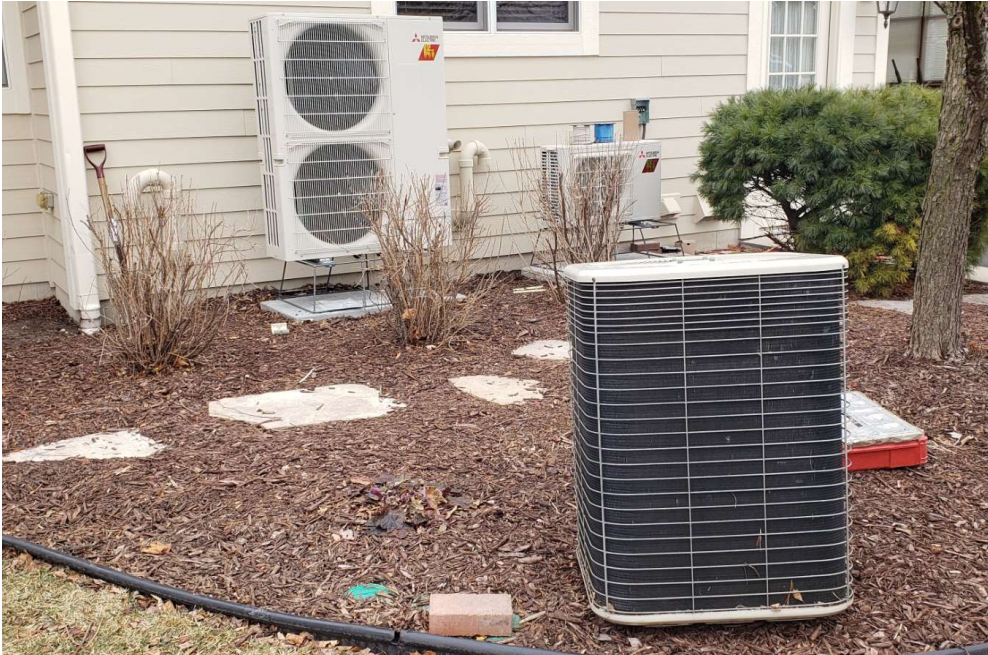
Cold Climate Heat Pump
\$0.094 / kWh

17-47 degrees (AHRI test points)

Cost Per Million BTU's		
Std Rate	Dual Fuel (\$0.069/kWh)	Dual Fuel + (\$0.047/kWh)
	\$27.00	
	\$14.11	
\$27.54	NA	NA
\$9.18	\$6.74	\$4.59

Source EIA Minnesota /MN Power – Updated Oct 2023

My Experience End of an Era Begins Feb 20, 2022!

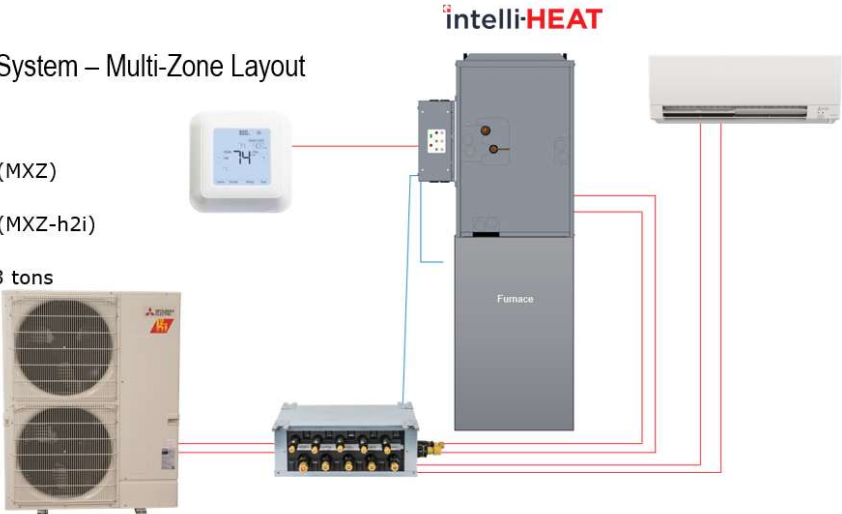


House Built in 2005 – System 17 Years Old
No HVAC Problems

Mitsubishi System Application

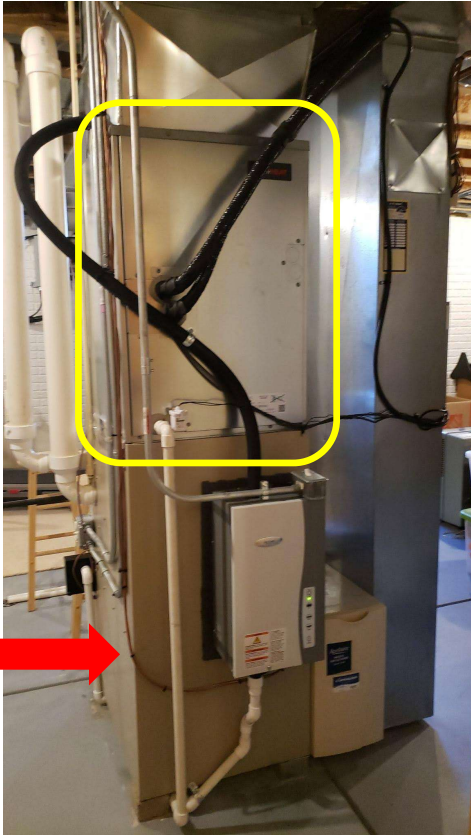
Dual Fuel System – Multi-Zone Layout

- Multi-zone
- Heat pump (MXZ)
 - 2 – 5 tons
 - Hyper heat (MXZ-h2i)
 - 2 – 4 tons
 - A-coil: 1.5-3 tons

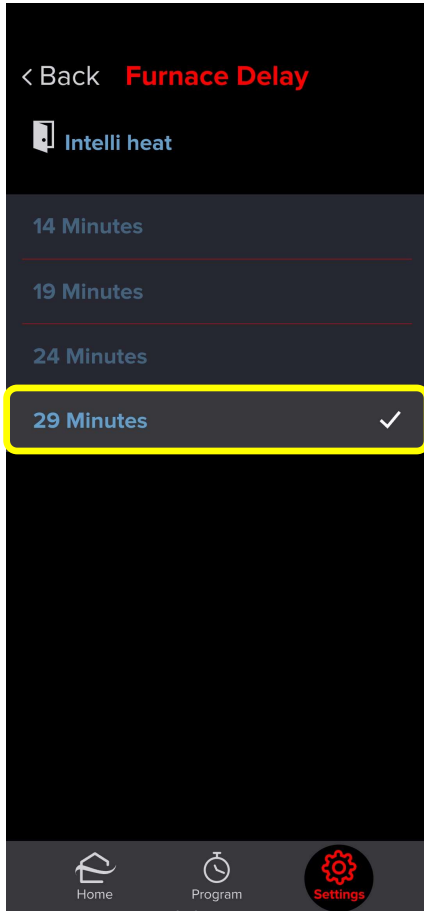
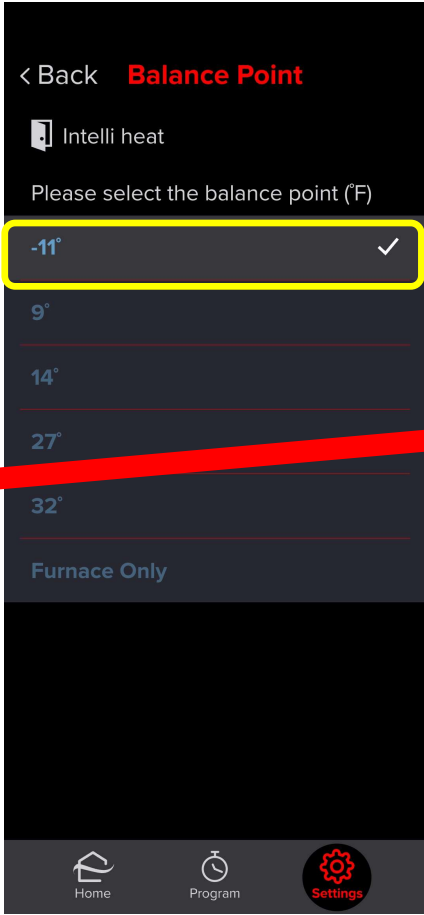
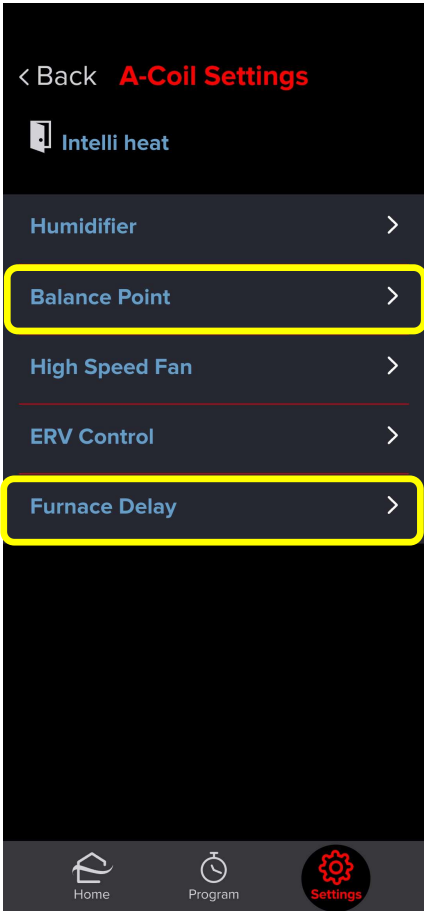


Mitsubishi 42kBtu
Hyperheat
(100% @ 5F)

2005 Lennox
Furnace
92% AFUE



How My Home Was Setup – Maximize Gas Displacement



Home Changes – Gas Reduction



We Energies Natural Gas Bill – Feb 2023

Home Changes – Gas /Energy Reduction

Effective Electric Cost/kWh - \$0.128

Therm YOY	Mar - Feb
Usage	-899.7
% Use Change*	-81.5%*
Cost 2021/2	\$0.93
Cost 2022/3	\$1.51
% Cost Change	61.8%

* ~98% Heating Reduction

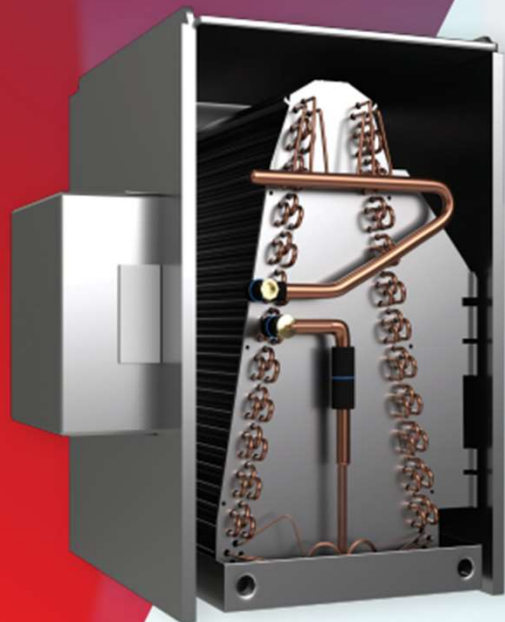
Total Home Energy (converted to kWh)		
	kWh	Total Cost (Actual)
2021/2	45,640	\$2,720
2022/3	22,676	\$2,744
YOY Energy	-50.3%	0.9%

Heating Degree Days + 1.4% Cooling Degree Days -25.2%

Had I stuck with Gas – This Years Bill Would have Been \$3,369

\$625 MORE

My **Cost Avoidance** or Energy Costs were **DOWN 18.6%**



Hybrid HVAC is Here

intelli-HEAT

 **MITSUBISHI
ELECTRIC**
HEATING & AIR CONDITIONING

Furnace Compatibility

Single Stage

PSC Motor



Two Stage

Multi-speed motor



Variable Speed

ECM



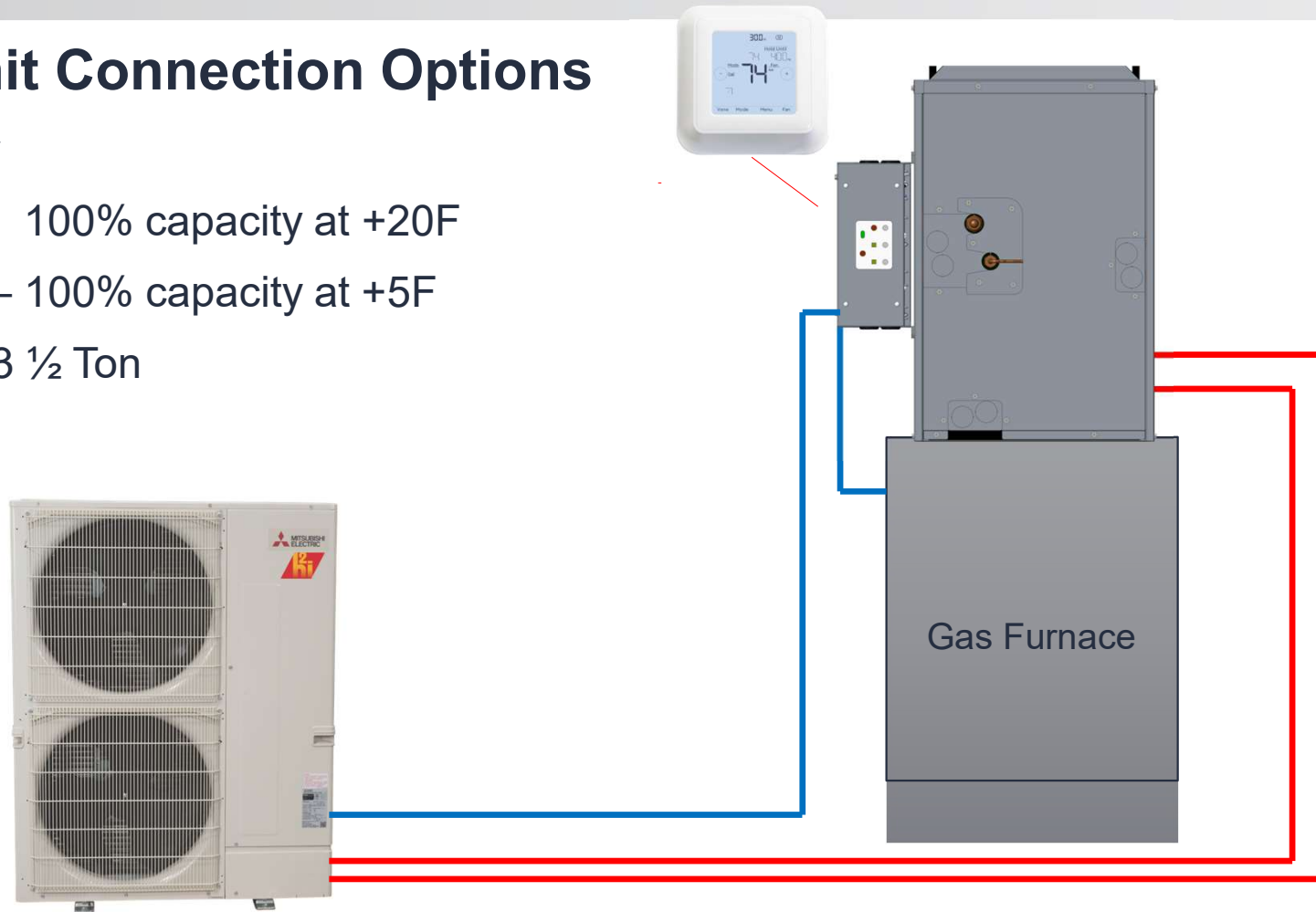
Compatible with any brand, thermostatically controlled (non-communicating) furnace.

Single Zone Applications

Outdoor Unit Connection Options

1. Cooling only
2. Heat pump - 100% capacity at +20F
3. Hyper-heat – 100% capacity at +5F

Sizes 1 ½ - 3 ½ Ton



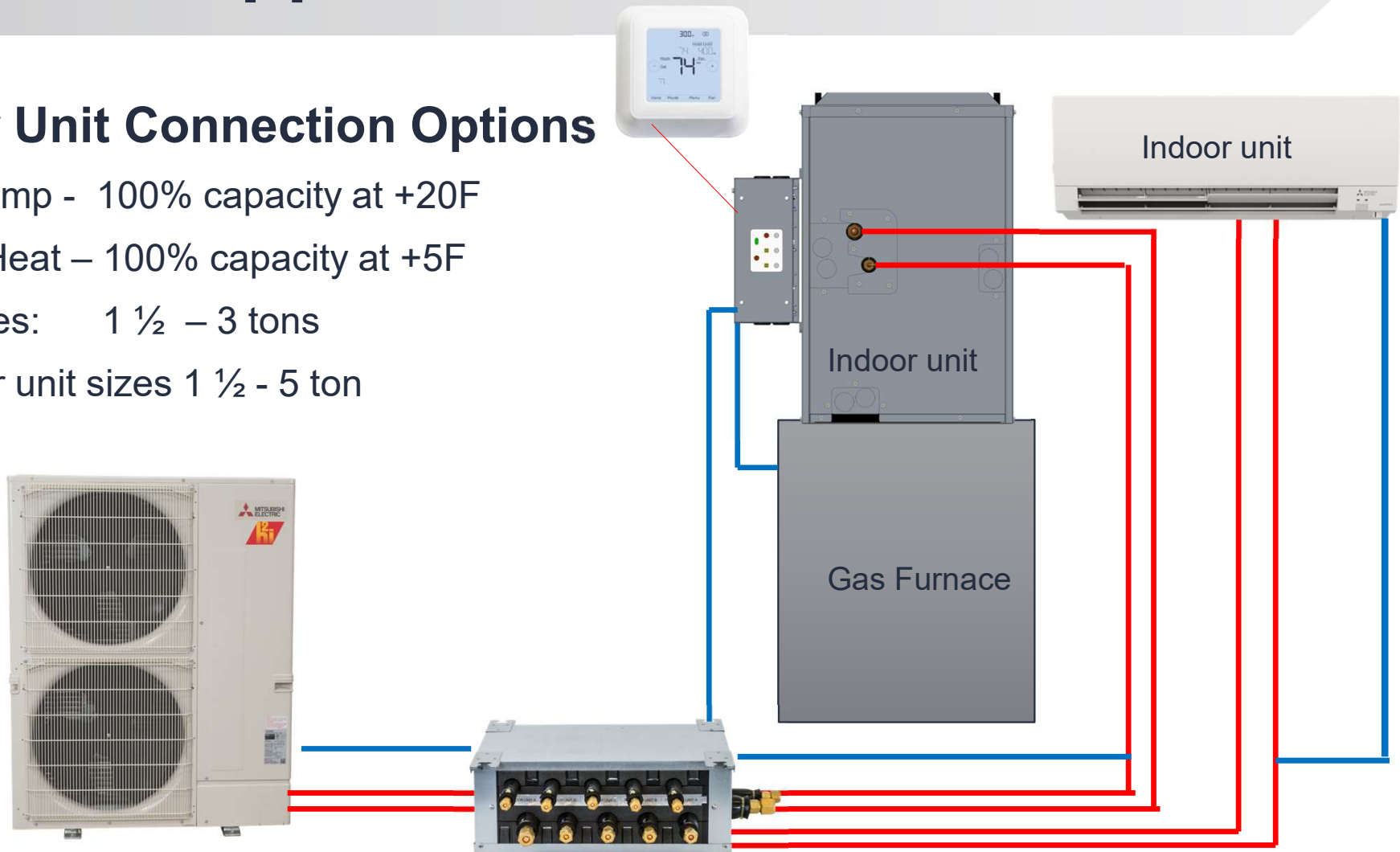
Multi-Zone Application

Outdoor Unit Connection Options

1. Heat pump - 100% capacity at +20F
3. Hyper-Heat – 100% capacity at +5F

Coil sizes: 1 ½ – 3 tons

Outdoor unit sizes 1 ½ - 5 ton



Multi-Zone Indoor Unit Options

Indoor Units



MSZ-FS
Wall-mounted



MSZ-EF
Wall-mounted



MSZ-GS
Wall-mounted



SVZ
Multi-position
Air Handler



EZ FIT® Recessed
Ceiling Cassette



SLZ Model
Ceiling Cassette



PLA Model
Ceiling Cassette



PCA
Ceiling Suspended



MFZ-KJ
Floor-mounted



SEZ
Horizontal-ducted



PEAD
Horizontal-ducted



intelli-HEAT™
Cased Coil

Intelli-Heat Capacity Balance Point and Economic Balance Point

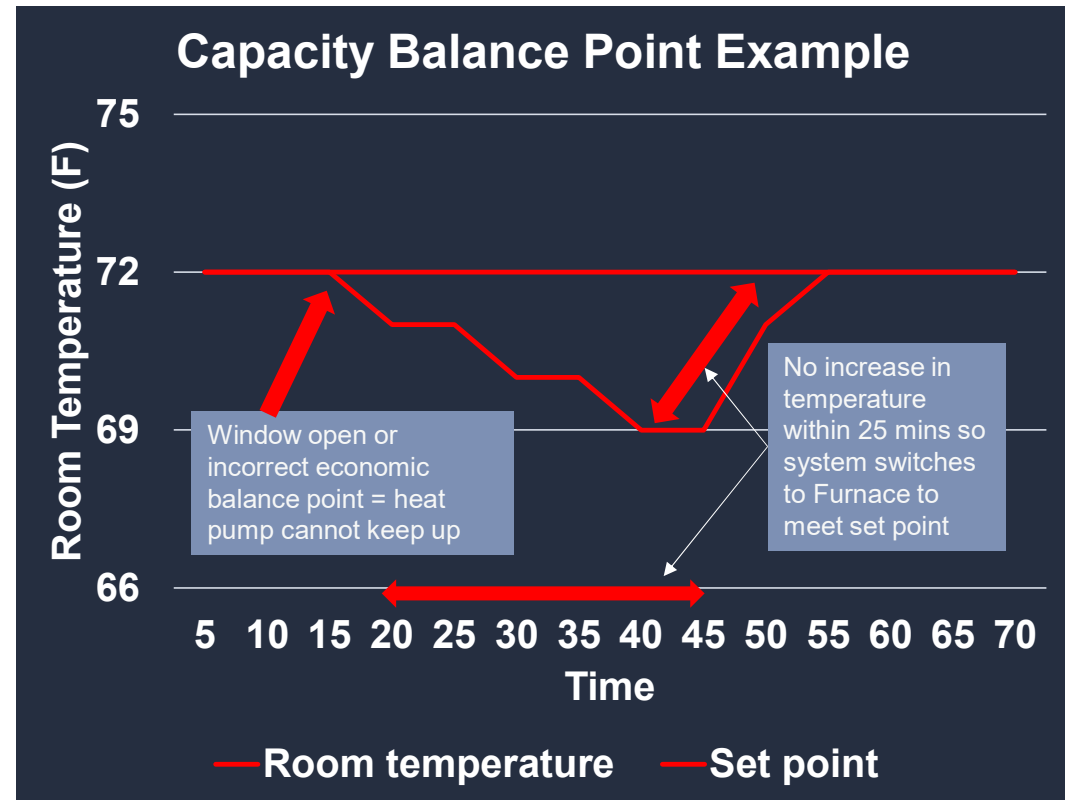
intelli-HEAT

• Capacity Balance Point:

- Ensure the space temperature does NOT drop below 0.9F from set point

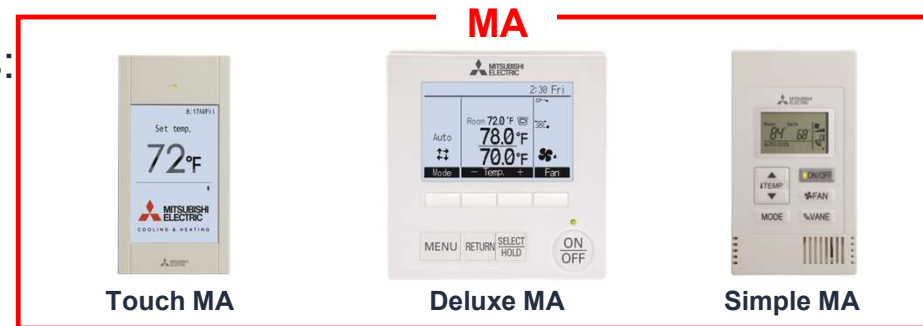
• Economic Balance Point:

- Adjust to the temperature at which the gas furnace takes over
- -11F, 9F, 14F, 27F, 32F and Furnace only



Intelli-Heat Controller Compatibility

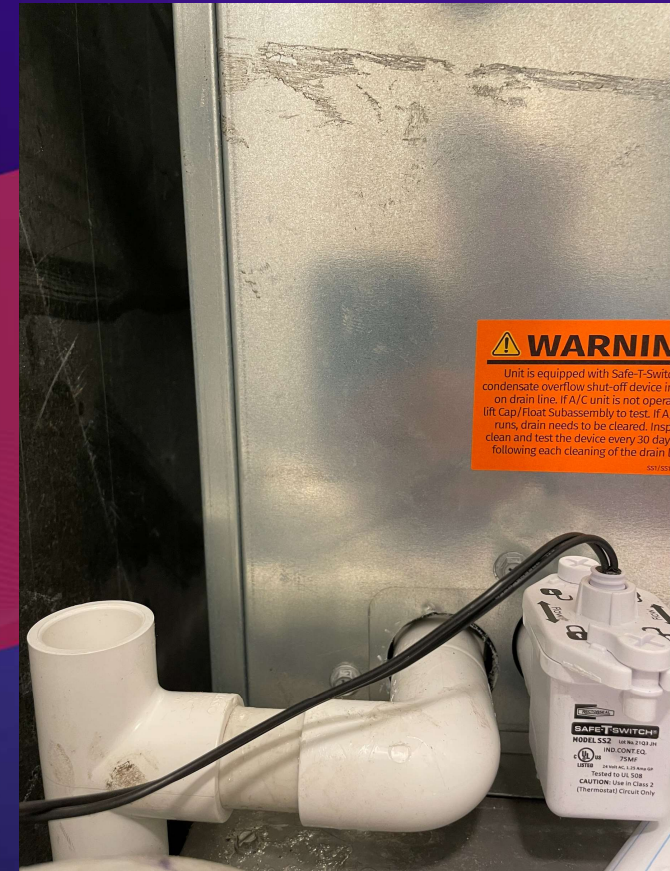
- Wireless Interface
- MHK2
- Thermostat Interface
- Touch MA
- Deluxe MA
- Simple MA
- Compatibility with an existing thermostat requires:
- Thermostat Interface



Note: for existing zoned systems you must use the PAC-US445CN-1

intelli-HEAT Dual Fuel System





⚠ WARNING
Unit is equipped with Safe-T-Switch condensate overflow shut-off device in on drain line. If A/C unit is not operating, Cap/Float Sub-assembly to test. If A/C runs, drain needs to be cleared. Insp clean and test the device every 30 day following each cleaning of the drain line.







Contact Info



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